AI in Cancer Care:
2 Wins, 2 Current Challenges

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Disclosure
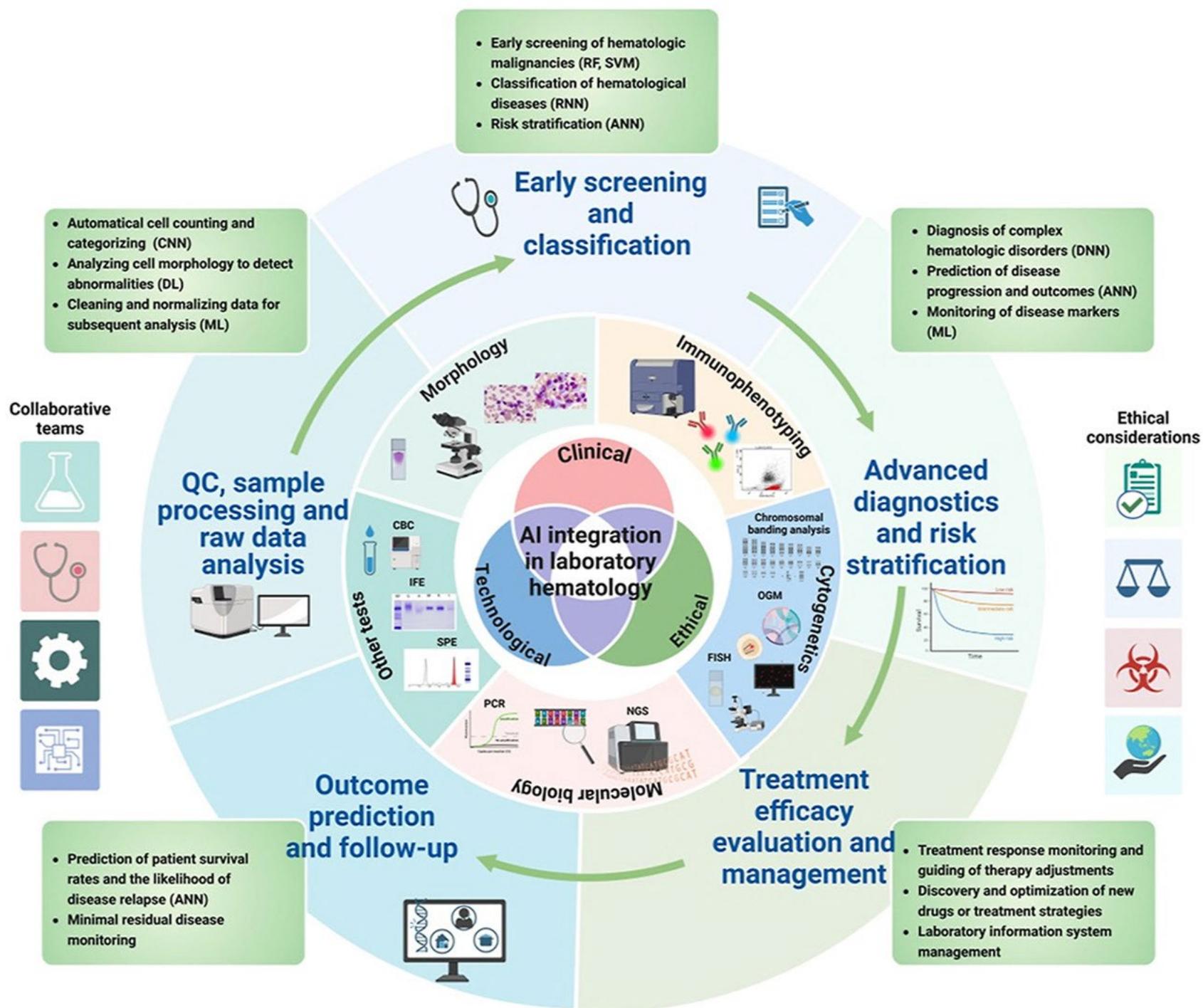
Research Funding and Partnerships

- GE Healthcare
- Microsoft
- Melinda Stead Fund
- IBM
- Conquer Cancer Foundation
- National Cancer Institute

Advising

- AstraZeneca
- eHealth Technologies
- MD Outlook
- Biodesix
- Medscape
- Dedham Group
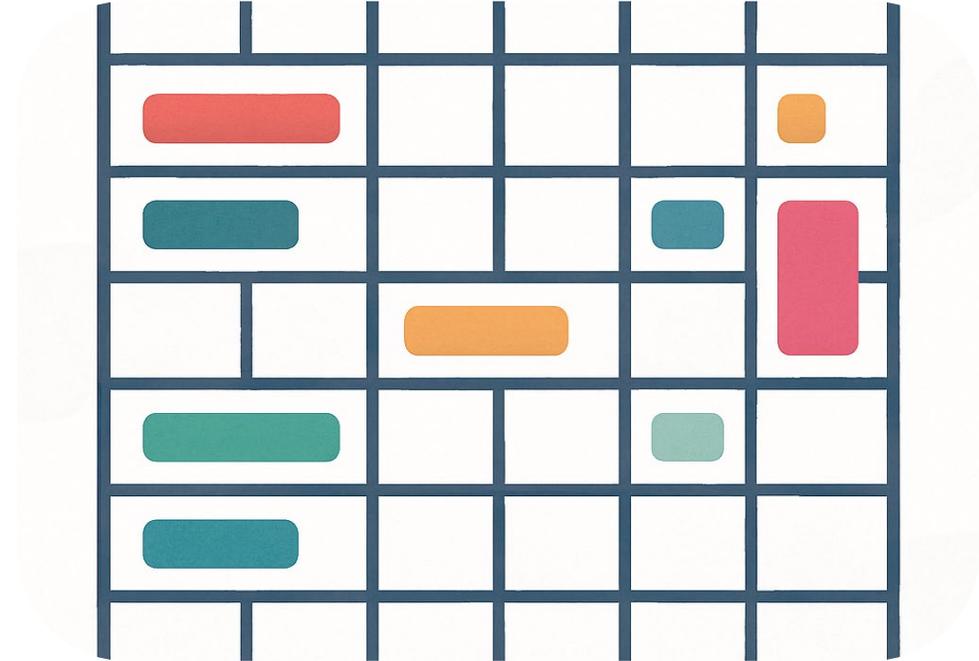- MJH Life Sciences

Ownership

- FacultyCoaching.com
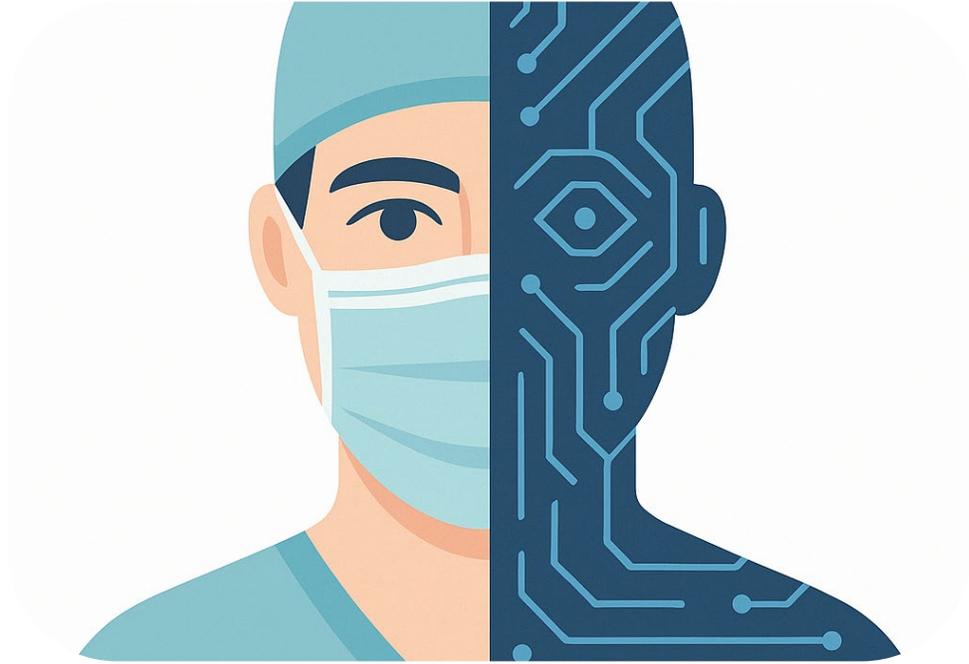
Liao, et al. *APSB*. June 2025.

Selected implementations

Surgical
planning

Infusion
scheduling

Current challenges in AI implementation

AI Reliance

Medical Student Paradox

AI reliance vs CDS

Retention of concepts following essay
writing decreased with LLMs compared to
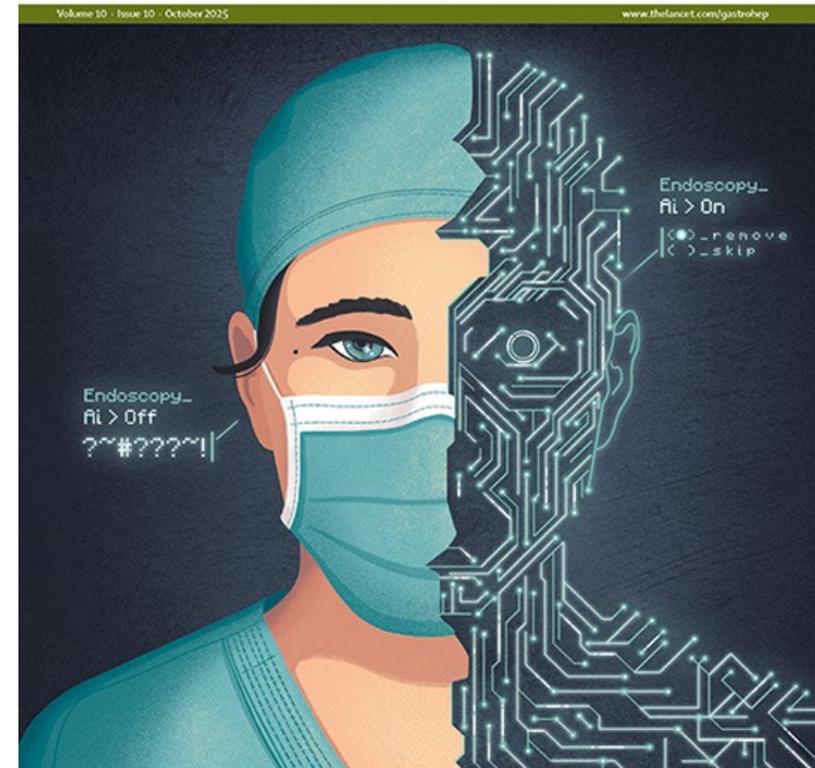web search or no assistance

- web search
- LLM
- no assistance

Endoscopy Deskilling

Continuous exposure to AI-assisted colonoscopy decreased the adenoma detection rate (ADR) when AI was removed

Budzyń, et al. *Lancet*. Oct 2025.

Medical Student Paradox

For predictive Decision Support Interventions focused on diagnosis or treatment recommendations

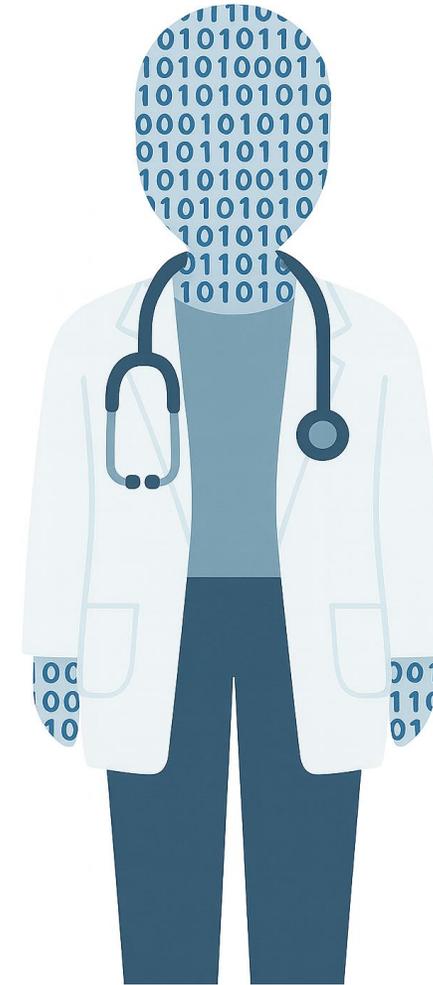A "great medical student" equivalent falls short

- Same license/malpractice risk

- Cognitive burden of assessing recommendations (similar to some clinical trial matching systems)

- Balancing known-unknown and unknown-unknown

AI Licensing

What would it mean to start to allow AI algorithms any level of practice rights?

- Medication refills

- Flu / viral workup

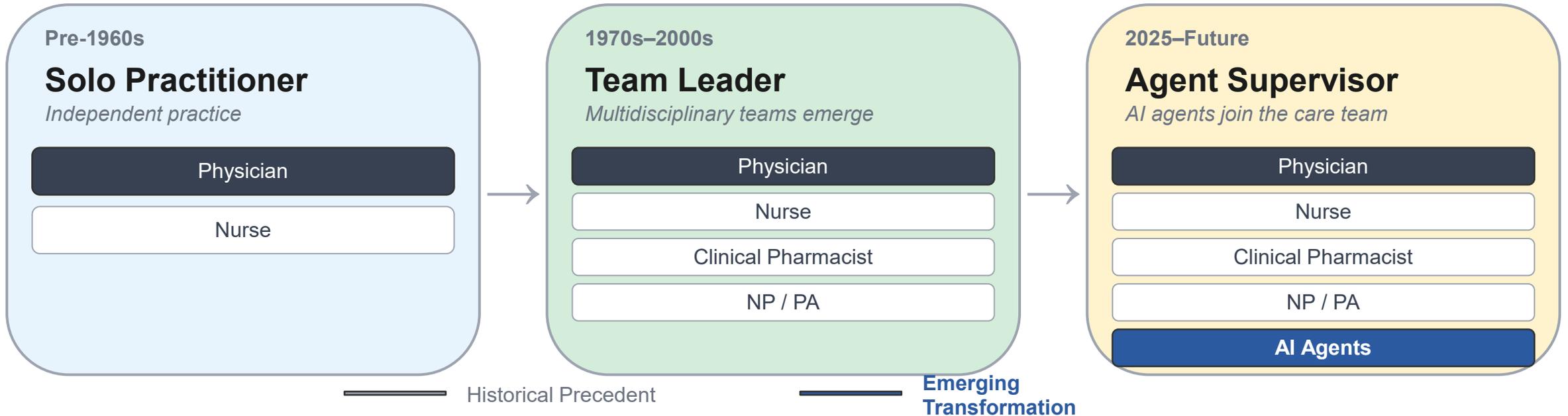- Admin tasks: back to school / work letters / FMLA

Third Transformation

- projected shortage of up to 86,000 physicians by 2036[1]

- Large language models have already passed the United States Medical Licensing Examination and specialty board certifications[2]

1. The Complexities of Physician Supply and Demand: Projections From 2021 to 2036. https://www.aamc.org/media/75236/download (2024).
2. Elkin, P. L. et al. Semantic Clinical Artificial Intelligence vs Native Large Language Model Performance on the USMLE. JAMA Netw. Open 8, e256359 (2025).

Historical expansion of the care team and the emerging integration of AI agents

Pre-1960s
Solo Practitioner
Independent practice

| Physician |
| Nurse |

1970s–2000s
Team Leader
Multidisciplinary teams emerge

| Physician |
| Nurse |
| Clinical Pharmacist |
| NP / PA |

2025–Future
Agent Supervisor
AI agents join the care team

| Physician |
| Nurse |
| Clinical Pharmacist |
| NP / PA |
| AI Agents |

—— Historical Precedent   —— **Emerging Transformation**

Key Milestones in Care Team Expansion

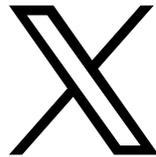|			
1960s:	Clinical pharmacy services begin	**2020s:**	AI passes medical licensing exams
1965:	First PA program (Duke)	**2024:**	AI ambient scribes deployed at scale
1980s:	Clinical pharmacists join ICU teams	**Near-term:**	AI agents for administrative tasks
1980s:	NPs gain prescriptive authority	**Future:**	AI agents with supervised practice rights

Key insight: Just as physicians evolved from solo practitioners to leaders of multidisciplinary teams including NPs, PAs, and clinical pharmacists, the next transformation will see physicians supervising AI agents capable of semi-independent practice.

Osterman TJ. AI's Role in Healthcare: The Third Transformation. (Under Review)

Contact

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