From Hype to Scalable Adoption

Current and Future AI Trends in Healthcare

Ryan Sadeghian, MD, MBA, MSc

FAAPL, FACHDM, FHIMSS, FAAP

Chief Medical Information Officer

Associate Professor of Pediatrics

HIMSS AI Forum Advisor

(Former Chief AI Officer)

University of Toledo

Faculty Development• December 17-18, 2025

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Today's Journey

1

AI Fundamentals

Understanding AI, Machine Learning, and Generative AI - what they are and how they differ

2

Current State

Where healthcare stands today in AI adoption and implementation

3

The Good, Bad & Ugly

Success stories, hallucinations, real failures, and lessons learned

4

Governance Imperative

Why governance must lead AI adoption and comprehensive frameworks

5

Global AI Race

Semiconductors, infrastructure, US-China competition, and education gap

6

Future Directions

Agentic AI, multimodal systems, and University of Toledo's path forward

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What is AI, ML, and Generative AI?

Artificial (Augmented) Intelligence (AI)

The broad field of computer science focused on creating systems that can perform tasks typically requiring human intelligence, such as visual perception, speech recognition, decision-making, and language translation.

Machine Learning (ML)

A subset of AI where systems learn from data and improve their performance over time without being explicitly programmed. ML algorithms identify patterns and make predictions based on training data.

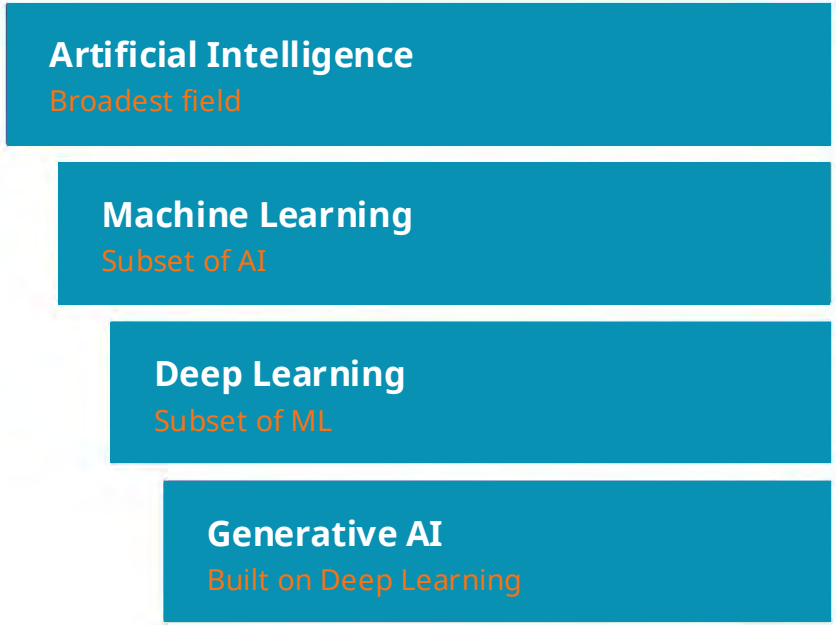
Deep Learning (DL)

A specialized subset of machine learning using artificial neural networks with multiple layers. Deep learning excels at processing complex, unstructured data like images, audio, and text.

Generative AI

AI systems built on deep learning that can create new content—text, images, code, or audio—based on patterns learned from training data. Examples include OpenAI, Gemini, and other large language models.

Hierarchical Relationship



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Evolution of AI Capabilities

Although AI Agents Are Exciting, It's Important to Bring the Right Tool for the Job

Traditional AI

Rigid but Reliable Implementer

Executes predefined workflows but doesn't adapt and is hard to scale

Key Characteristics

- Performs rule-based execution
- Doesn't learn or reason
- Requires structured inputs
- Is efficient but inflexible

Best For
Basic repetitive and structured tasks that rarely change

Gen AI

Supercharged Copilot

Understands, generates, and transforms information but lacks execution

Key Characteristics

- Processes unstructured data
- Generates text-based outputs
- Is context-aware but reactive
- Is smart but needs human direction

Best For
Human augmentation and knowledge generation

Agentic AI

Fully Autonomous Operator

Learns, reasons, and executes multistep workflows with minimal oversight

Key Characteristics

- Performs autonomous workflow execution
- Makes decisions without predefined rules
- Adapts to real-time inputs
- Has fewer human touchpoints

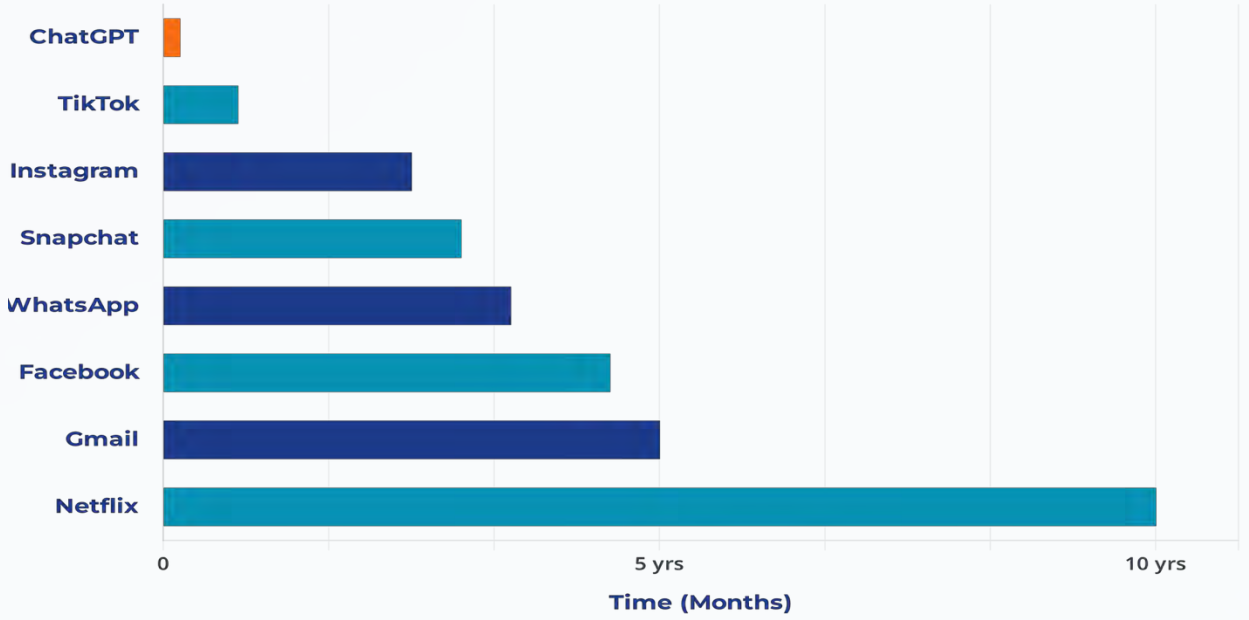
Best For
End-to-end automation, process orchestration, and decision-making

Source: McKinsey & Company, "Evolution of AI Capabilities" (2025)

The Speed of AI Adoption

ChatGPT: The Fastest-Growing Consumer Application in History

Time to Reach 100 Million Users



ChatGPT reached 100M users 4.5x faster than TikTok and 60x faster than Netflix

2
Months to 100M Users

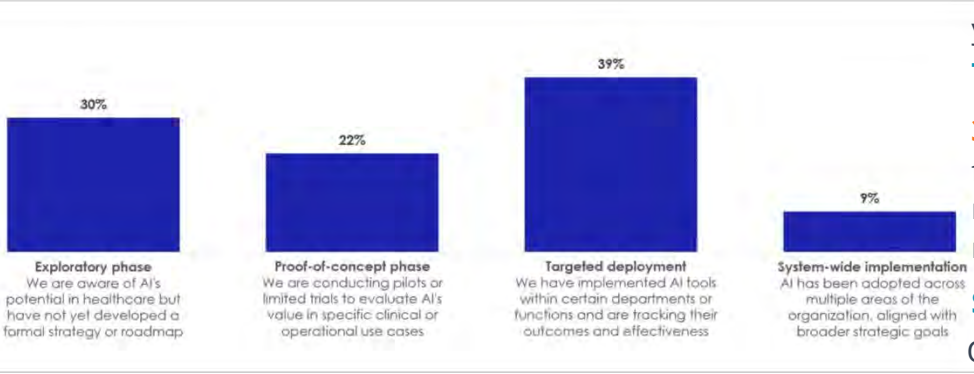
100M
User Milestone January 2023

#1
Fastest Growing App Ever

Record Breaking

Previous record: TikTok at 9 months

Current AI Adoption in Healthcare



The Majority Are Still Exploring

52% of healthcare organizations (30% Exploratory + 22% Proof-of-concept) are in early stages, aware of AI's potential but have not yet developed formal strategies or moved beyond limited trials.

Targeted Deployment Leads

39% have implemented AI tools within specific departments or functions and are tracking outcomes and effectiveness. This represents the pragmatic middle ground, real deployment with measured risk.

System-Wide Adoption Remains Rare

Only **9% have achieved system-wide implementation** aligned with broader strategic goals. This reflects the significant organizational, technical, and governance challenges of scaling AI across the enterprise.

The Gap We Must Bridge

The journey from exploration to enterprise-wide adoption requires more than technology, it demands governance, workforce development, data infrastructure, and leadership commitment.

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Source: HIMSS/CodeMetrix Healthcare AI Adoption Survey 2024-2025

The Fundamental Challenge of AI Adoption

NT + OO = COO

New Technology + Old Organization = Costly Old Organization

New Technology

- Generative AI capabilities
- Advanced algorithms
- Powerful computing infrastructure
- Sophisticated models
- Innovative tools and platforms

Old Organization

- Legacy workflows and processes
- Siloed decision-making
- Resistance to change
- Inadequate governance structures
- Insufficient training and literacy

Costly Old Organization

- Failed implementations
- Wasted investments
- Patient safety risks
- Clinician burnout and frustration
- Competitive disadvantage

⚠ **Technology alone is not the answer. Organizational transformation, governance, and cultural change must accompany AI adoption to realize its full potential.**

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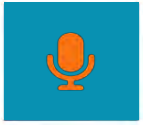
The Good - AI Success Stories



Ambient Clinical Documentation

2-3 hours saved daily

AI-powered ambient listening captures patient-clinician conversations and generates clinical notes automatically, reducing documentation burden and allowing clinicians to focus on patient care.

50% reduction in documentation time or 7 minutes saved per encounter

Radiology AI Detection (MELD Graph)

64% missed lesions detected

AI analysis of brain MRIs identified epilepsy-causing lesions (focal cortical dysplasias) that were previously missed by radiologists, leading to successful surgical interventions and improved patient outcomes.

Source: JAMA Neurology, University College London Study 2024

Emergency Triage AI

80% accuracy in ambulance triage

AI-powered triage systems analyze patient symptoms and vital signs to prioritize emergency response, improving resource allocation and reducing time to critical interventions.

Source: World Economic Forum Healthcare AI Report 2025

Clinical Decision Support

30% reduction in readmissions

AI-driven clinical decision support systems identify high-risk patients and recommend evidence-based interventions, significantly reducing hospital readmissions and improving care quality.

Source: McKinsey Healthcare AI Market Analysis 2023

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AI-Powered Medical Devices: Keikku 2.0 Smart Stethoscope

Listen Like an Expert

more accurate than professionals?

Advanced acoustic sensors + AI capture heart, lung, and gut sounds - detecting murmurs and abnormalities in real time

Document Automatically

Will not miss those missed by doctors?

Ambient mode transcribes conversations and drafts SOAP notes with ICD-10 and CPT codes directly into EHRs

Adapts to Every Setting

Unlimited integration opportunities?

Wireless Bluetooth connectivity for rounds, ambulances, or home visits. Open API for ambient intelligence integration

Key Insight: Transforms the stethoscope into a diagnostic + documentation device - a medical assistant that listens, learns, and records at once

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Lapsi Health (Amsterdam/Houston: $350. FDA Class II Cleared (2023)

AI Could Analyze Speech to Help Diagnose Alzheimer's › A short voice sample could reveal disease

BY REBECCA SOHN | 24 JAN 2022 | 4 MIN READ

ice Biomarkers

pitch, rhythm, pauses, word choice ,to detect early signs
cal and psychiatric conditions.

Depression Detection

How It Works

word-

AI analyzes vocal acoustic features such as pitch variability, speech

Psychology Today

AI Can Use Your Voice to Detect Depression

And it only takes a few seconds.

The Bad - AI Hallucinations Explained

What Are Hallucinations?

AI hallucinations occur when generative AI models produce outputs that are plausible-sounding but factually incorrect, fabricated, or nonsensical. The AI "fills in gaps" with invented information that appears credible but has no basis in reality.

Why Hallucinations Occur

Generative AI models are probabilistic machines, not truth machines. They predict the most likely next word or token based on patterns in training data, without understanding meaning or verifying accuracy.

When faced with uncertainty or gaps in knowledge, the model generates plausible-sounding responses rather than admitting "I don't know." This is a fundamental limitation of how large language models work, they optimize for coherence and fluency, not factual correctness.

Training data limitations, ambiguous prompts, and the model's tendency to "smooth over" contradictions all contribute to hallucinations. The model has no internal fact-checking mechanism.

Healthcare-Specific Risks

- **Fabricated clinical guidelines:** AI may cite non-existent treatment protocols or medication dosages that sound authoritative but are dangerous.
- **Invented drug interactions:** Hallucinated contraindications or drug interactions could lead to harmful prescribing decisions.
- **False diagnostic criteria:** AI may generate plausible but incorrect diagnostic criteria, leading to misdiagnosis.
- **Fabricated research citations:** AI may reference studies, journals, or authors that do not exist, undermining evidence-based practice.
- **Incorrect patient information:** AI may "fill in" missing patient data with plausible but false information if not properly constrained.

In healthcare, hallucinations are not just errors, they are patient safety risks. Human verification is mandatory for all AI-generated clinical content.

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AI · DELOITTE

Deloitte was caught using AI in $290,000 report to help the Australian government crack down on welfare after a researcher flagged hallucinations

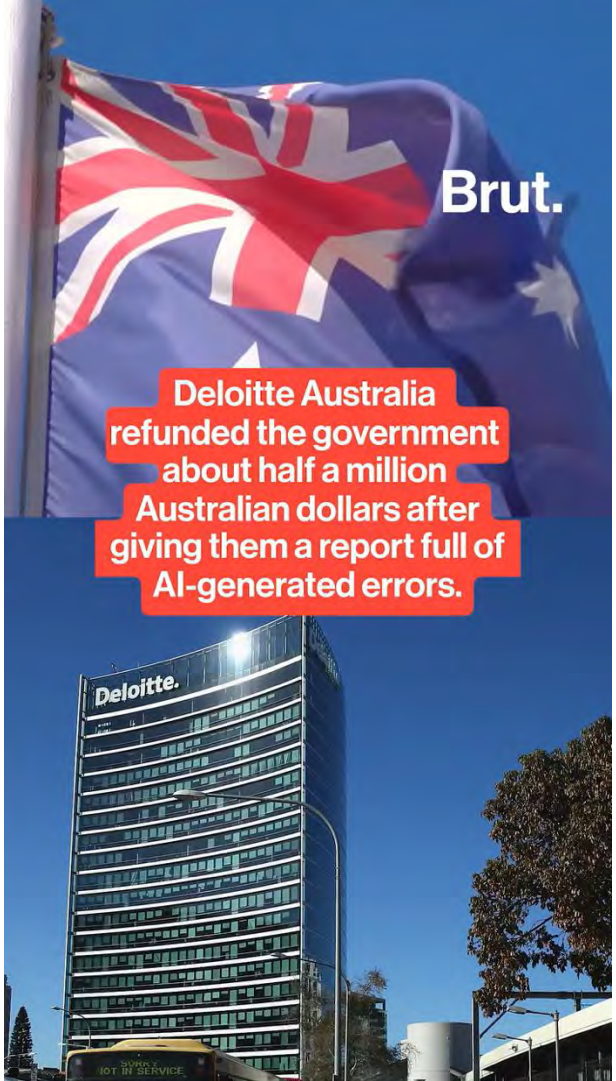
BY **NINO PAOLI**
NEWS FELLOW

October 7, 2025 at 5:10 PM EDT

Deloitte said it would invest $3 billion in generative AI development through fiscal year 2030.
GETTY IMAGES

Published July 2025 (errors discovered shortly after)

machine. Every AI-generated output must be verified by qualified humans.



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7280
AMERICA'S LARGEST
INJURY LAW FIRM
MORGAN & MORGAN
New York City Bus
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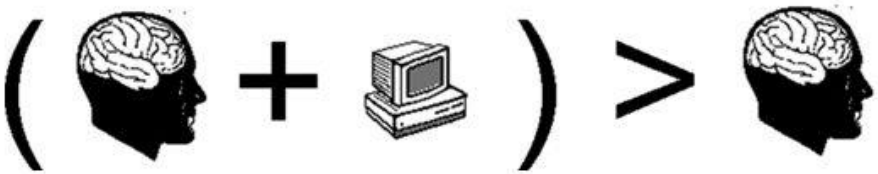
FORTHEPEOPLE.COM
Yankees
PROUD PARTNER OF
THE NEW YORK YANKEES



Empathy & Trust

Patients need human connection, compassion, and trust. AI cannot provide emotional support or understand the human experience of illness.

Contextual Understanding

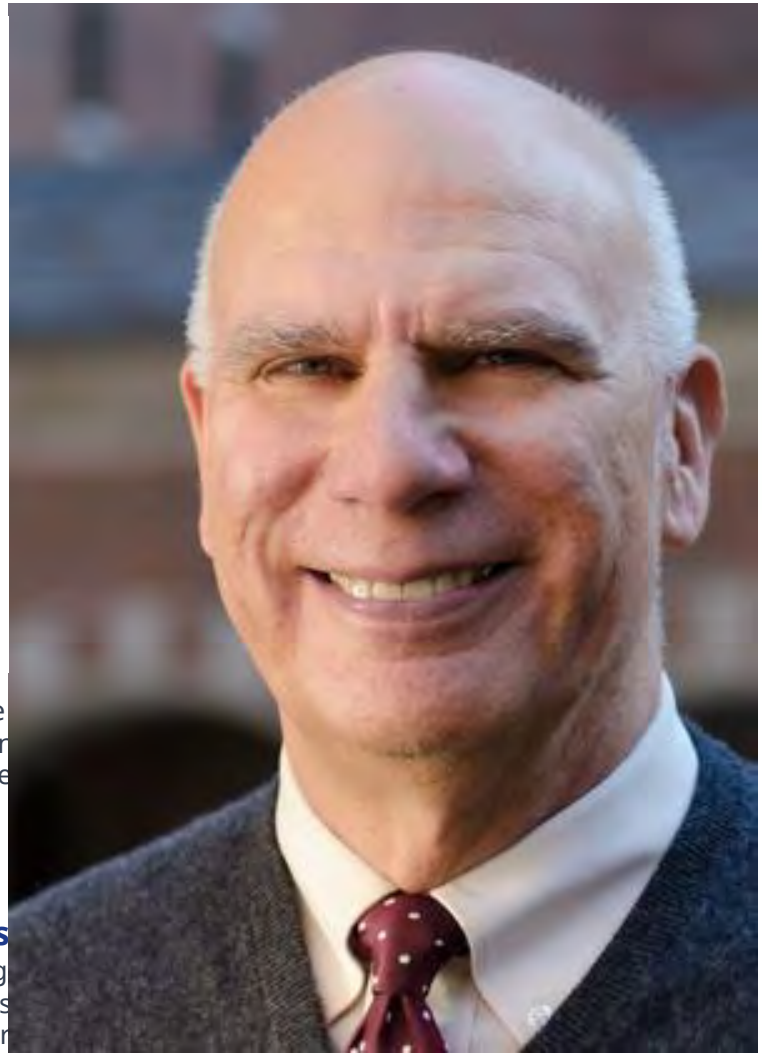
Clinical decisions require understanding of patient history, social determinants, and nuanced context that AI lacks.

Ethical Judgment

Complex medical decisions require reasoning, value judgments, an consideration of patient preference AI cannot replicate.

Hallucinations & Errors

AI generates plausible-sounding incorrect information. Human overs essential to catch and correct AI er



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My Version of (Human + Computer) > Human

(Human + AI + Rhythm) > Human

Augmenting Intelligence with a beat.

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Five Major Risks of AI in Healthcare

1 Hallucinations

AI generates plausible-sounding but factually incorrect or fabricated information. In healthcare, this can lead to false clinical guidelines, invented drug interactions, or fabricated research citations.

Example: AI citing non-existent treatment protocols or medication dosages that sound authoritative but are dangerous.

2 Bias & Discrimination

AI models trained on biased data perpetuate and amplify existing healthcare disparities. Underrepresented populations may receive inferior care recommendations or be systematically excluded from diagnostic algorithms.

Example: Dermatology AI trained primarily on light skin tones performs poorly for patients with darker skin, leading to missed diagnoses.

3 Data Privacy & Security

AI systems require vast amounts of patient data for training and operation. Data breaches, unauthorized access, re-identification risks, and lack of patient consent pose serious privacy threats.

Example: AI models inadvertently memorizing and exposing sensitive patient information from training data, violating HIPAA and patient trust.

4 Algorithmic Brittleness

AI models trained on specific datasets may fail catastrophically when encountering new populations, clinical settings, or edge cases. Performance degrades unpredictably outside training conditions.

Example: Sepsis prediction model trained at one hospital performs poorly at another due to different patient demographics and clinical workflows.

5 Output Limitations & Lack of Explainability

Many AI models function as "black boxes," providing recommendations without explaining their reasoning. Clinicians cannot understand why the AI made a particular decision, making it difficult to trust, validate, or override AI recommendations. Additionally, AI outputs may be overconfident, providing precise-sounding answers without indicating uncertainty or confidence levels.

Example: Deep learning model recommends treatment but cannot explain which patient factors influenced the decision, preventing clinicians from exercising informed judgment.

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Risk Mitigation Strategies

Human Oversight & Verification

Mandatory human review of all AI-generated clinical content before use. Qualified clinicians must verify accuracy, appropriateness, and safety. AI should augment, not replace, human decision-making.

Rigorous Validation & Testing

Prospective validation in target clinical environments before deployment. Test across diverse patient populations, clinical settings, and edge cases. Establish performance thresholds and safety criteria.

Continuous Monitoring & Auditing

Real-time performance monitoring to detect model drift, degradation, or unexpected behavior. Regular audits of AI outputs, error rates, and clinical outcomes. Establish feedback loops for continuous improvement.

Bias Detection & Mitigation

Systematic bias audits across demographic groups, clinical conditions, and care settings. Use diverse, representative training data. Implement fairness metrics and equity assessments in model development and deployment.

Transparency & Documentation

Clear documentation of AI model purpose, limitations, training data, performance metrics, and intended use cases. Transparent communication with clinicians and patients about AI involvement in care decisions.

Explainability & Interpretability

Explainable AI methods that provide reasoning for recommendations. Clinicians must understand why AI made a particular decision to exercise informed judgment, validate outputs, and maintain accountability.

Comprehensive AI Governance Framework

A robust governance framework ensures **patient safety, regulatory compliance, ethical AI use, and organizational accountability** throughout the AI lifecycle

1 Oversight Structure

Establish cross-functional AI governance committee with clinical, technical, legal, and ethical expertise. Define clear roles, responsibilities, and decision-making authority.

Examples: AI Steering Committee, Clinical AI Review Board, Ethics Advisory Panel

2 Risk Assessment

Categorize AI applications by risk level (high/medium/low) based on patient impact, autonomy, and clinical significance. Apply proportional oversight and validation requirements.

Examples: Risk matrices, impact assessments, failure mode analysis

3 Validation Requirements

Require rigorous validation before deployment: clinical accuracy, bias testing, performance across populations, integration testing, and human oversight protocols.

Examples: Prospective clinical trials, retrospective validation, external validation cohorts

4 Monitoring & Auditing

Implement continuous monitoring of AI performance, outcomes, and adverse events. Conduct regular audits to detect model drift, bias amplification, and unexpected failures.

Examples: Real-time dashboards, quarterly performance reviews, incident reporting systems

5 Transparency

Ensure transparency in AI use: disclose AI involvement to patients and clinicians, document model limitations, provide explainable outputs, and maintain audit trails.

Examples: Patient consent forms, clinician training materials, model documentation

6 Accountability

Define clear accountability for AI decisions: who is responsible when AI fails, liability frameworks, incident response protocols, and mechanisms for redress.

Examples: Liability policies, incident response teams, patient grievance procedures

Source: Duke Health Policy Institute - AI Governance in Health Systems White Paper 2024

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Governance-Led Use Case Selection

Risk-Based Governance Matrix

HIGH	**Direct patient care decisions:** Diagnostic recommendations, treatment planning, medication dosing, clinical decision support that directly influences care pathways. Requires rigorous validation, continuous monitoring, and mandatory human oversight.
MEDIUM	**Clinical support functions:** Ambient documentation, clinical note summarization, patient education materials, scheduling optimization. Requires validation, periodic auditing, and clinician review before patient-facing use.
LOW	**Administrative and operational tasks:** Meeting summaries, internal communications, research literature review, workflow analysis. Requires basic oversight and quality checks but minimal clinical validation.

Selection Criteria Framework

1 Patient Safety Impact

Does the AI directly influence clinical decisions? What is the potential harm if the AI fails or hallucinates?

2 Clinical Value Proposition

Does it solve a real pain point? Will clinicians actually use it? What is the measurable benefit?

3 Data Quality & Availability

Do we have sufficient, high-quality data? Is the data representative of our patient population?

4 Validation Feasibility

Can we validate performance? Do we have ground truth data and clinical expertise to assess accuracy?

5 Regulatory & Legal Compliance

Does it meet FDA, CMS, and state requirements? Are liability and accountability clearly defined?

6 Equity & Bias Considerations

Will it work equally well across all patient populations? Have we assessed for potential bias?

Tailoring Governance to Risk

Not all AI tools carry the same level of risk. Governance processes should be proportionate to the potential impact on patient safety, privacy, and clinical outcomes.

	High Clinical Impact	Medium Clinical Impact	Low Clinical Impact
Direct Patient Care	**HIGH RISK** Diagnostic AI, treatment recommendations, clinical decision support *Full governance review, continuous monitoring, bias audits*	**MEDIUM RISK** Clinical documentation, ambient listening, patient communication *Standard review, periodic audits, user feedback*	**LOW RISK** Patient education materials, appointment scheduling *Streamlined review, basic monitoring*
Clinical Support	**MEDIUM RISK** Radiology workflow optimization, triage systems, risk stratification *Standard review, bias assessment, regular validation*	**MEDIUM RISK** Medical literature search, protocol lookup, coding assistance *Standard review, output validation requirements*	**LOW RISK** Administrative workflow tools, meeting summarization *Streamlined review, privacy compliance check*
Administrative	**MEDIUM RISK** Revenue cycle optimization, resource allocation affecting care *Standard review, equity impact assessment*	**LOW RISK** HR tools, supply chain management, business analytics *Streamlined review, data governance compliance*	**LOW RISK** Email drafting, presentation creation, productivity tools *Basic review, security and privacy check*

Risk-based governance balances thoroughness with efficiency. High-risk tools demand intensive scrutiny; low-risk tools require streamlined processes.

Regulatory Landscape and Compliance

FDA Guidance

FDA regulates AI/ML-based medical devices through **Software as a Medical Device (SaMD)** framework. Over 690 AI/ML-enabled devices have received FDA clearance or approval. The FDA's AI Action Plan emphasizes continuous learning algorithms and real-world performance monitoring.

CMS Policies

Centers for Medicare & Medicaid Services (CMS) establishes **coverage and reimbursement policies** for AI-enabled services. CMS requires evidence of clinical utility, patient safety, and improved outcomes for reimbursement decisions.

State Regulations

States are enacting AI-specific healthcare regulations. **California, New York, and Illinois** have introduced bills requiring transparency, bias audits, and patient notification when AI is used in clinical decision-making.

EU AI Act

The European Union's AI Act classifies healthcare AI as **"high-risk"** requiring strict compliance with transparency, data governance, human oversight, and accuracy requirements. U.S. healthcare organizations with international operations must comply.

Biden Executive Order

October 2023 Executive Order on Safe, Secure, and Trustworthy AI directs HHS to establish **AI safety programs** and requires healthcare organizations to implement responsible AI practices, including bias testing and transparency measures.

HIPAA & Data Privacy

AI systems must comply with **HIPAA Privacy and Security Rules.** OCR has issued guidance on AI and protected health information (PHI), emphasizing de-identification, minimum necessary use, and patient consent for AI training data.

Key Compliance Actions for Healthcare Organizations

Conduct regulatory assessments for all AI tools to determine FDA, CMS, and state compliance requirements

Establish vendor due diligence processes to verify regulatory compliance and data privacy protections

Implement continuous monitoring and post-market surveillance for AI performance and safety

Build vs. Buy: Strategic Decision Framework

tom Solution

Recommended Hybrid Approach

Buy for core clinical applications where vendor expertise, validation, and regulatory compliance are critical. **Build for unique workflows** where customization provides strategic advantage and internal expertise exists. Most organizations benefit from a hybrid strategy.

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The Leadership Imperative

Healthcare leaders face a defining choice: **lead the AI transformation** or watch from the sidelines as others shape the future of medicine. The time for incremental change has passed. Bold, decisive action is required now.

Act with Urgency

The AI revolution is accelerating. Organizations that move quickly will gain competitive advantages in quality, efficiency, and talent recruitment.

Govern Responsibly

Build robust governance frameworks that enable innovation while ensuring patient safety, equity, and regulatory compliance.

Engage Clinicians

Clinicians must be partners, not bystanders. Invest in education, training, and co-design to build trust and adoption.

The question is not whether AI will transform healthcare , it already is . The question is whether your organization will lead, follow, or be left behind.

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2010	**Denial & Dela** Nokia continued Android gained r change.
2013	**Collapse** Market share fell business for $7.2
2016	**Exit** Microsoft wrote Nokia phone bra

are & AI

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US chip ban on China: the US to release a blacklist of Chinese chip factories

The US government is expected to release a list of Chinese chipmaking factories banned from receiving tech in an attempt to help US compagnies identify them and thus comply with existing restrictions.

Tech giants unveil 5 new data center sites

The projects bring the Stargate initiative's pipeline, including its flagship campus in Abilene, Texas, to $400 billion in investments.

Published Sept. 29, 2025

Sebastian Obando
Reporter

AI EFFECT

OpenAI's first data center in $500 billion Stargate project is open in Texas, with sites coming in New Mexico and Ohio

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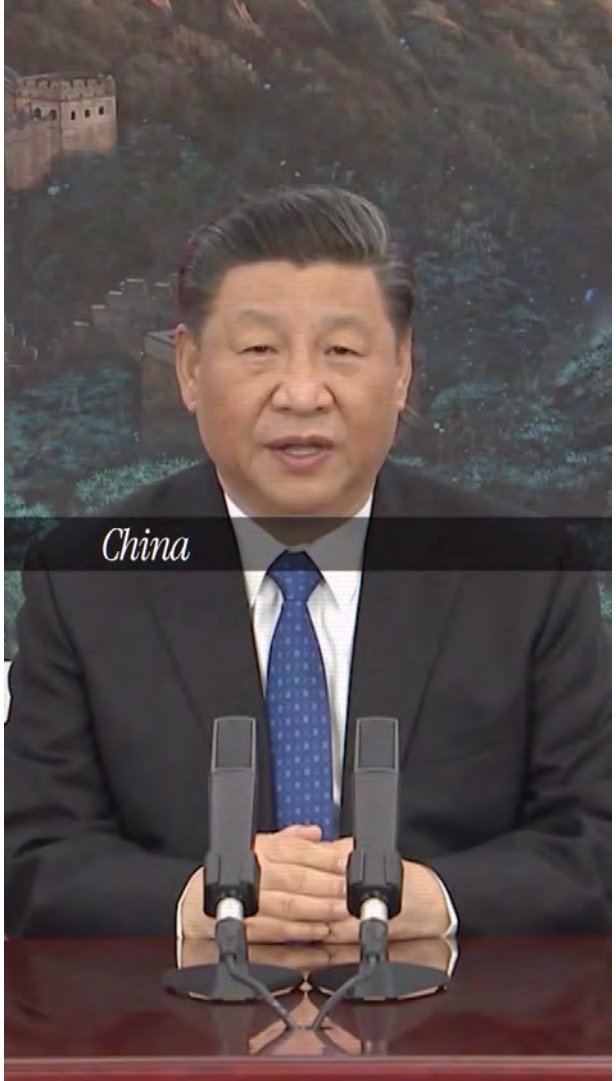
Chinese universities want students to use more AI, not less

Unlike the West, where universities are still agonizing over how students use AI in their work, top universities in China are going all in.

By Caiwei Chen

July 28, 2025

STEPHANIE ARNETT/MIT TECHNOLOGY REVIEW | ADOBE STOCK



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Market Growth & Performance Gains

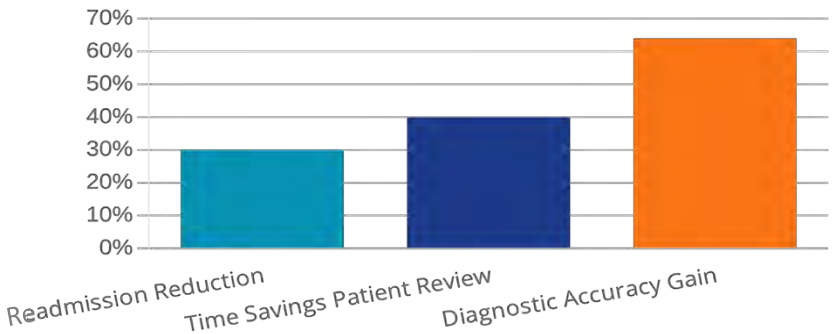
2024 → 2030

$187B

Global Healthcare AI Market

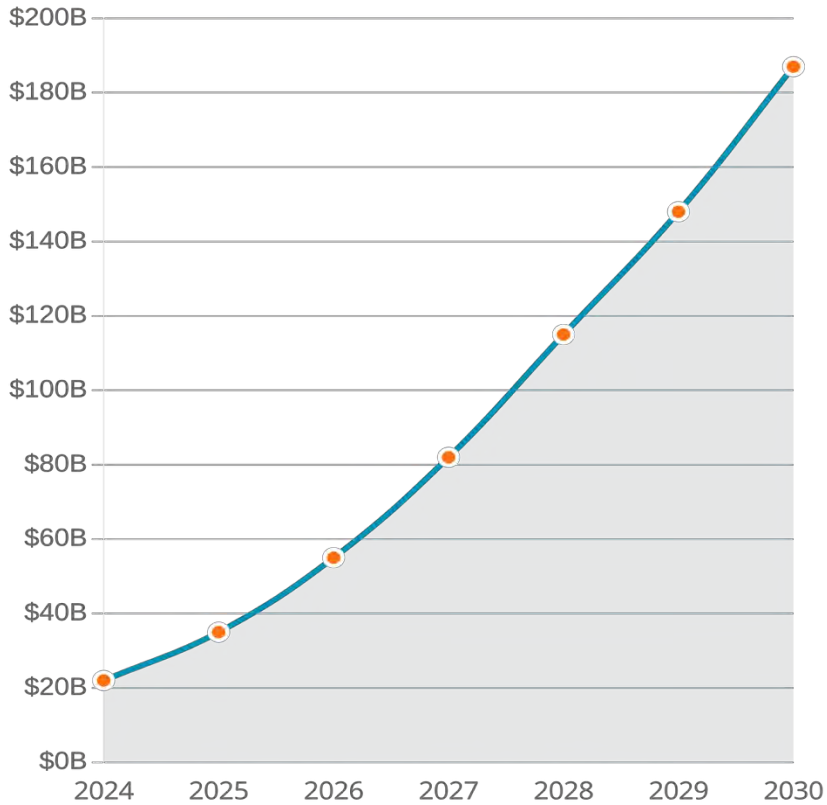
Healthcare AI market projected to reach $187 billion by 2030, growing at a compound annual growth rate (CAGR) of 37.5% from 2024 baseline.

Key Performance Metrics



Source: McKinsey Healthcare AI Report 2024, World Economic Forum 2025

Healthcare AI Market Growth Projection



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Higher Education - AI 24 Oct - Written By Emma Thompson

University of Pittsburgh partners with Anthropic and AWS to launch an AI-enabled campus

Pitt partners with Anthropic and Amazon Web Services to launch an AI-enabled campus of the future.

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Source: McKinsey & Company, "Evolution of AI Capabilities" (2025)

Multimodal AI: The Next Frontier

Multimodal AI systems can **simultaneously process and integrate multiple types of data** which are text, images, audio, video, and structured clinical data, to provide comprehensive diagnostic and treatment insights

Core Capabilities

Visual Analysis
Radiology, pathology, dermatology imaging with contextual understanding

Text Integration
Clinical notes, lab results, medical literature synthesis

Signal Processing
ECG, EEG, vital signs, wearable device data interpretation

Genomic Data
Genetic sequences, molecular pathways, personalized medicine

Clinical Applications in Development

1. **Comprehensive Diagnostic Assessment**
   Analyze patient history, imaging, labs, and genetic data simultaneously to generate differential diagnoses with supporting evidence
2. **Surgical Planning & Guidance**
   Integrate preoperative imaging, patient anatomy, and real-time intraoperative data for precision surgical navigation
3. **Personalized Treatment Optimization**
   Combine genomic profiles, treatment response data, and clinical outcomes to recommend individualized therapy protocols
4. **Remote Patient Monitoring**
   Synthesize wearable device data, patient-reported symptoms, and clinical context for proactive intervention
5. **Medical Education & Training**
   Create immersive learning experiences integrating case presentations, imaging, and interactive clinical reasoning
6. **Drug Discovery & Development**
   Accelerate research by analyzing molecular structures, clinical trial data, and patient outcomes across modalities

Prerequisites for Scalable Adoption

Moving from **hype to scalable adoption** requires more than technology—it demands organizational readiness, cultural transformation, and strategic infrastructure

Governance First

Establish **comprehensive AI governance framework** before widespread deployment. Define policies, review processes, and accountability structures to ensure patient safety and regulatory compliance.

Data Infrastructure

Build **robust data pipelines and interoperability** across systems. AI effectiveness depends on access to high-quality, standardized, and integrated clinical data.

Workforce Development

Invest in **continuous education and training** for clinicians, administrators, and IT staff. Build AI literacy and critical evaluation skills across the organization.

Stakeholder Engagement

Foster **collaborative partnerships** across clinical, technical, legal, and ethical domains. AI adoption requires buy-in and active participation from all stakeholders.

Measurement Framework

Establish **clear metrics and evaluation processes** to assess AI impact on clinical outcomes, operational efficiency, and patient experience. Data-driven decision-making is essential.

Innovation Culture

Cultivate **culture of responsible innovation** that balances experimentation with patient safety. Encourage learning from both successes and failures.

These prerequisites are not sequential—they must be developed in parallel to create a foundation for sustainable AI transformation

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Defining Success in Clinical AI

Why Model Accuracy Isn’t Enough: Building Clinician Trust and Workflow Adoption in Healthcare AI

Scan to Read Full Article: "Why Model Accuracy Isn't Enough"

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University of Toledo AI Implementations

Ambient Clinical Documentation

AI-powered ambient listening technology captures patient-clinician conversations and automatically generates clinical notes, reducing documentation burden and improving clinician satisfaction.

Pilot Phase

Clinical Decision Support GPTs

Custom GPT models trained on clinical guidelines and institutional protocols provide real-time decision support for diagnosis, treatment planning, and medication management across multiple specialties.

Pilot Phase

Radiology AI Integration (Via EMR Vendor)

Machine learning algorithms assist radiologists in detecting abnormalities, prioritizing critical cases, and reducing interpretation time for chest X-rays studies.

In Development

AI Governance Framework

Establishment of cross-functional AI governance committee with clinical, technical, legal, and ethical expertise to oversee AI validation, deployment, and monitoring across the health system.

In Development

Strategic AI Roadmap

1 PHASE

Foundation & Governance

Establish **AI governance structure**, define policies, conduct inventory of existing AI tools, and build data infrastructure for AI readiness.

2 PHASE

Pilot & Validation

Deploy **high-value use cases** (ambient documentation, clinical decision support) in controlled settings with rigorous validation and clinician feedback.

3 PHASE

Scale & Integration

Expand successful pilots **system-wide** , integrate AI into clinical workflows, and develop institutional AI capabilities through training and recruitment.

4 PHASE

Innovation & Leadership

Establish UT as **regional AI leader** through research partnerships, academic publications, and development of proprietary AI solutions for unique institutional needs.

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Conclusion: The Path Forward

1

AI is Transforming Healthcare—Now

We are beyond the hype cycle. **AI is delivering measurable clinical and operational value** across diagnostics, treatment planning, workflow optimization, and patient engagement. The question is no longer "if" but "how" we adopt responsibly.

2

Risks are Real and Must Be Managed

Hallucinations, bias, data privacy breaches, and algorithmic failures pose genuine threats to patient safety. **Robust governance is not optional.** It is the foundation for sustainable, ethical AI deployment in healthcare.

3

The Future is Agentic and Multimodal

Next-generation AI will autonomously integrate multiple data types, reason across complex scenarios, and provide evidence-based recommendations. **We must prepare our workforce and infrastructure** for this transformational shift.

4

Academic Medicine Must Lead

Universities have a unique responsibility to **advance AI innovation while upholding ethical standards, health equity, and the public good**. Our role is to shape AI's future in healthcare through rigorous research, education, and responsible implementation.

The journey from hype to scalable adoption requires collaboration, governance, education, and unwavering commitment to patient-centered care.

The AI transformation in healthcare is not a spectator sport. Every clinician, researcher, administrator, and community member has a role to play.

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Continuous Learning in the AI Era

Staying Current Requires Diverse Learning Resources and Constant Knowledge Updates

Multiple Pathways to AI Mastery

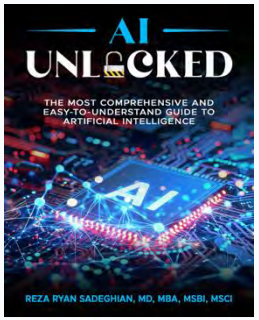
To stay current with Generative AI, healthcare professionals must leverage diverse learning resources and commit to continuous education

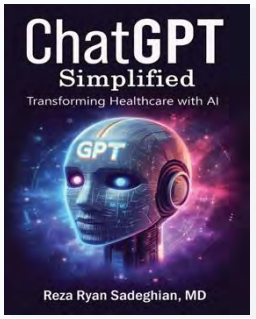
- Books & Publications
- Academic Journals
- Online Resources
- Video Tutorials
- Formal Training
- University Certifications

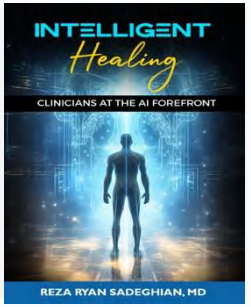
⚠ The pace of AI advancement requires constant learning and unlearning. What was cutting-edge 12 months ago may be outdated today.

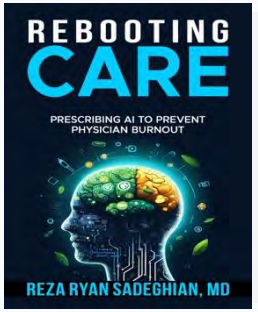
Knowledge Evolution

5 Years of Rapid AI Advancement









⚠ Four books in five years demonstrates the rapid pace of AI evolution and the need for continuous knowledge updates

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The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.

Alvin Toffler

Futurist, Author of Future Shock

Published 1970 • Still Relevant Today