EXPLORING THE INTERSECTION OF CLINICAL INFORMATICS AND MEDICINE FOMA 2026

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The faculty for this activity, has no relevant relationships with ineligible companies to disclose.

OBJECTIVES

Introduction and Definitions

Overview and Current Landscape of Informatics

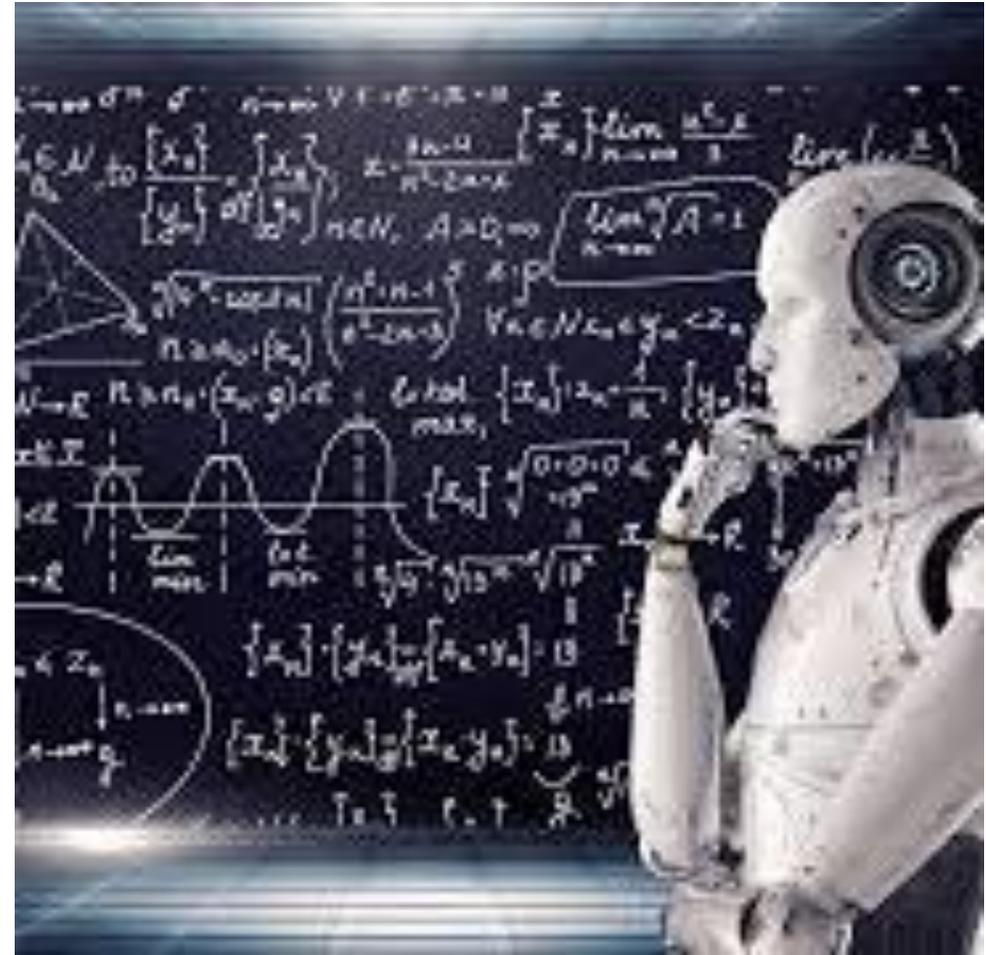Emerging AI Trends in Clinical Informatics

Resources for the Physician – emphasis on Family Practice

INTRODUCTION AND SCOPE

- Definition of **Clinical Informatics**
  - A multidisciplinary field that integrates people, processes, and technology to manage and use clinical data for improved healthcare outcomes (1)

DEFINITIONS

ARTIFICIAL INTELLIGENCE (AI)

- Field of science concerned with building computers and machines that can reason, learn, and act in such a way that would normally require human intelligence or that involves data whose scale exceeds what humans can analyze

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- When was the term Artificial Intelligence first used?
- 1956!
- For bonus points, who coined it and where?
- John McCarthy, an American computer scientist, at the Dartmouth Summer Research Project on Artificial Intelligence

MACHINE LEARNING

- Branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy

DEEP LEARNING

METHOD IN AI THAT TEACHES COMPUTERS TO PROCESS DATA IN A WAY THAT IS INSPIRED BY THE HUMAN BRAIN
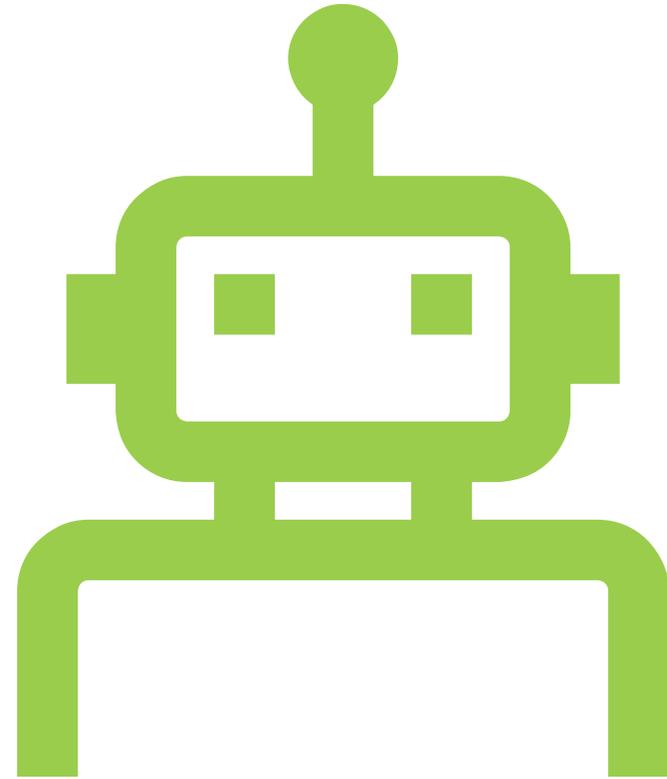
NATURAL LANGUAGE PROCESSING (NLP)

- A machine learning technology that gives computers the ability to interpret, manipulate, and comprehend human language

PURPOSE OF TODAY'S TALK

EXPLORE THE LANDSCAPE OF CLINICAL INFORMATICS NOW, ITS AI-DRIVEN EVOLUTION, AND FUTURE TRAJECTORY

ALL THINGS CONSIDERED: AI

- Artificial Intelligence (AI) in healthcare refers to the use of machine learning algorithms and software to analyze, interpret, and understand complex medical data
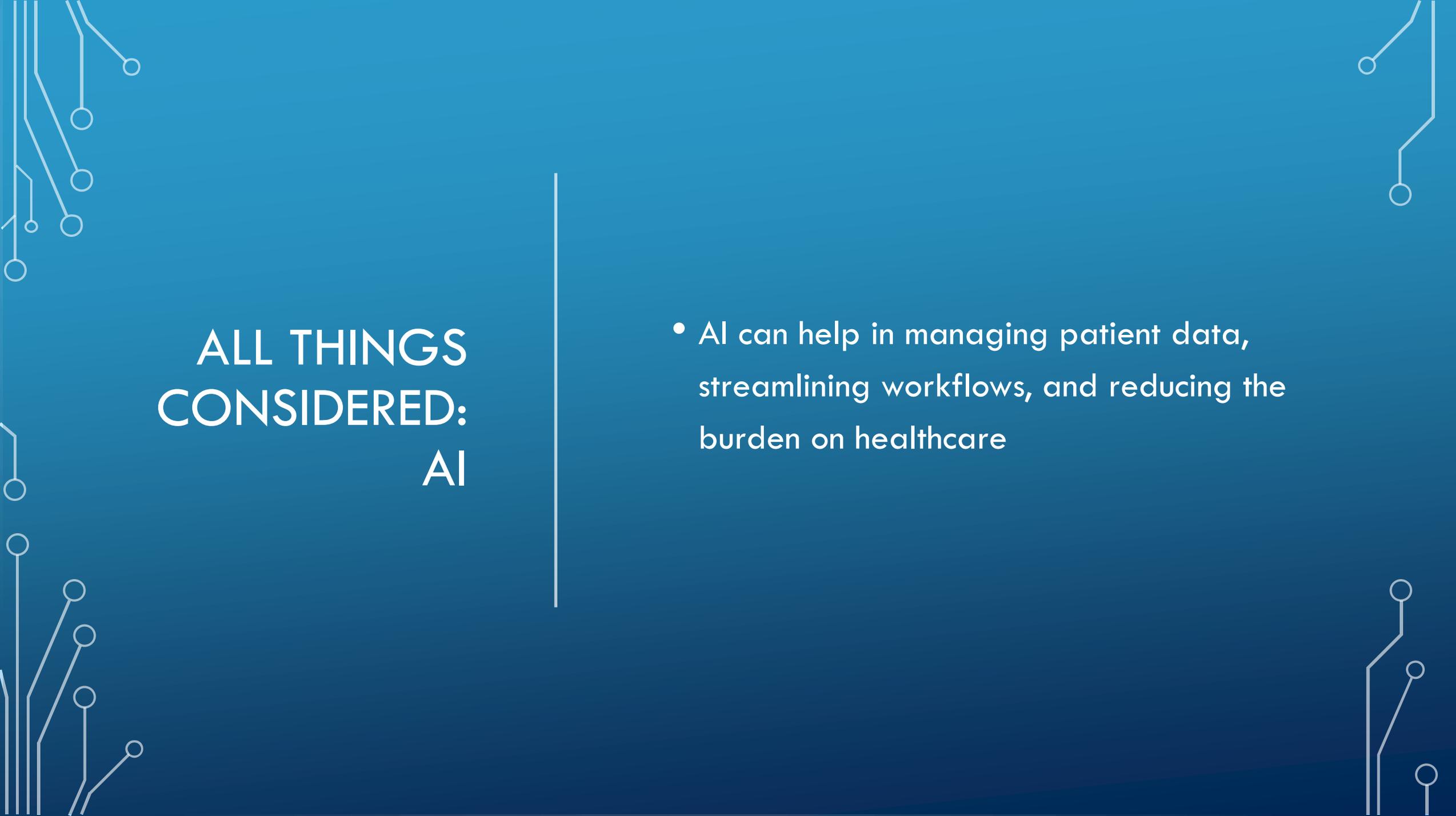
ALL THINGS CONSIDERED: AI

AI applications in healthcare can range from improving diagnostic accuracy and predicting patient outcomes to personalizing treatment plans and enhancing operational efficiency

AI can assist in analyzing medical images, predicting disease progression, and automating routine administrative

ALL THINGS CONSIDERED: AI

In clinical practice, AI can support decision-making by providing clinicians with evidence-based recommendations and insights derived from large datasets

This can lead to more accurate diagnoses, better treatment plans, and improved patient outcomes
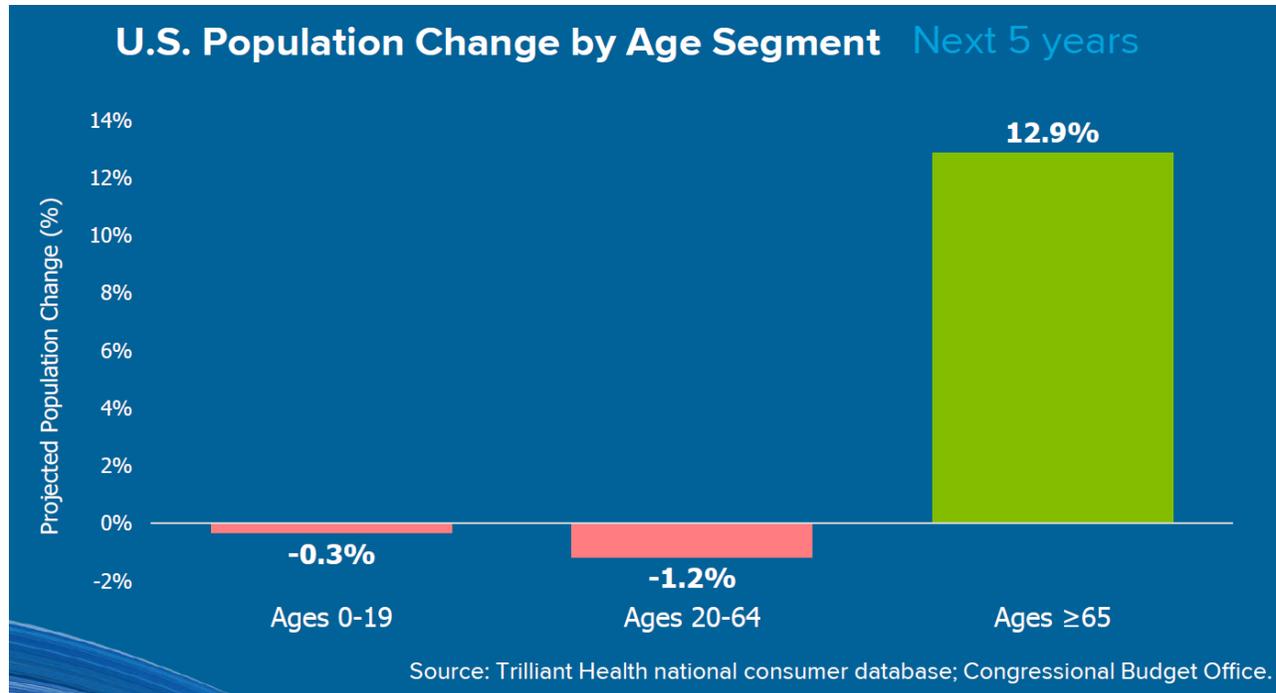
ALL THINGS CONSIDERED: AI

- AI can help in managing patient data, streamlining workflows, and reducing the burden on healthcare

ALL THINGS CONSIDERED: AI

Overall, AI in healthcare holds the promise of enhancing the quality of care, increasing efficiency, and reducing costs, ultimately leading to better health outcomes for patients

Why is this so important?

U.S. Population Change by Age Segment Next 5 years

Projected Population Change (%)

- 14%
- 12%
- 10%
- 8%
- 6%
- 4%
- 2%
- 0%
- -2%

12.9%

-0.3%
Ages 0-19

-1.2%
Ages 20-64

Ages ≥65

Source: Trilliant Health national consumer database; Congressional Budget Office.

MARKET FORCES: INCREASING HEALTHCARE DEMAND

MARKET FORCES: SHRINKING WORKFORCE
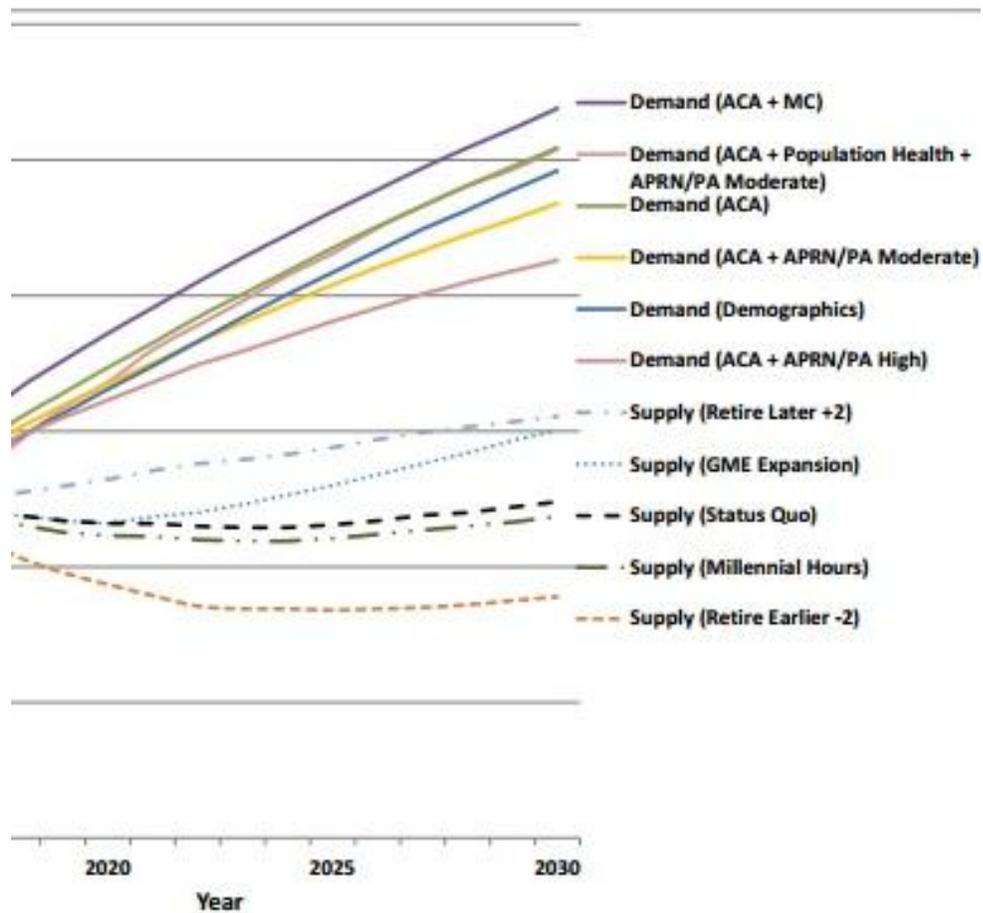
MARKET FORCES: PHYSICIAN SHORTAGE TO EXCEED 104K BY 2030

CURRENT STATE OF CLINICAL INFORMATICS: ADOPTION AND ROLE OF AI

- In 2024, 86% of medical professionals are already using AI tools, with 60% recognizing AI's ability to detect patterns and diagnoses beyond human capabilities (2)

CURRENT STATE OF CLINICAL INFORMATICS: KEY APPLICATIONS IN PRACTICE

- Diagnostic Imaging & Radiology
  - Over 340 FDA-approved AI tools assist in detecting conditions like tumors and strokes, improving speed and accuracy while maintaining human oversight (3)

CURRENT STATE OF CLINICAL INFORMATICS: KEY APPLICATIONS IN PRACTICE

- Automated Medical Scribes
  - AI scribes transcribe and structure clinical notes, reducing clinician burnout

CURRENT STATE OF CLINICAL INFORMATICS: KEY APPLICATIONS IN PRACTICE

- Clinical Decision Support Systems (CDSS)

  - Implement AI-driven alerts, reminders, and recommendations to support more effective patient care at the point of service

CURRENT STATE OF CLINICAL INFORMATICS: KEY APPLICATIONS IN PRACTICE

- Remote Patient Monitoring
  - AI-enabled systems monitor chronic diseases via wearables, enabling early intervention

CURRENT STATE OF CLINICAL INFORMATICS: INNOVATION HIGHLIGHTS

- OpenEvidence
  - A physician-only AI search engine delivering peer-reviewed guidance; used daily by ~40% of U.S. physicians, with ~10,000 hospitals adopting it

CURRENT STATE OF CLINICAL INFORMATICS: INNOVATION HIGHLIGHTS

- AI-powered medical scribe software automates clinical documentation and enabling task extraction to streamline workflows
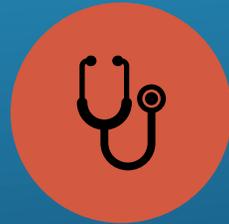
EMERGING AI TRENDS IN CLINICAL INFORMATICS

- Generative AI & Documentation
  - Tools that auto-generate SOAP and BIRP notes using speech transcription and LLMs are helping to reduce errors and clinician workload
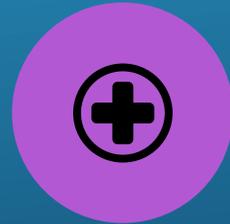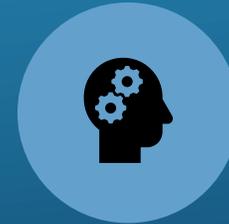
WHY AI MATTERS FOR HOSPITALISTS

INCREASING ADMINISTRATIVE BURDEN

RISING PATIENT VOLUMES & COMPLEXITY

DOCUMENTATION FATIGUE & BURNOUT

AI CAN AUGMENT, NOT REPLACE

FOCUS: FREE, SIMPLE-TO-USE AI TOOLS

TYPES OF FREE AND EASY AI TOOLS AVAILABLE

Category	Examples	Use Case
Generative AI	ChatGPT, Claude.ai, Perplexity.ai	Summarize notes, generate H&P
Transcription	Whisper, otter.ai	Convert dictation to text
Image Analysis	Chest X-ray AI tools (CheXNet), Skin Image AI	Preliminary reads
Medical Search	OpenEvidence, PubMedGPT, Consensus	Ask clinical questions
Spreadsheet Automation	ChatGPT + Excel/Sheets	Build patient trackers
Education & CME	Med-PaLM demos, AI Anki tools	Update knowledge

FREE CHATGPT FOR NOTE DRAFTING

Input: Brief H&P → Output: Structured SOAP Note

Prompts:

- "Draft a SOAP note for a 62-year-old male with CHF exacerbation"

Can be used to:

- Create discharge summaries
- Generate patient education material
- Translate notes for patient readability

https://chat.openai.com

FREE AI MEDICAL SCRIBES

- Tools-like **Whisper** (open-source), **Scribeberry** (limited free tier)

- Record patient encounters → AI transcribes & formats

- Reduces charting time, improves face-to-face interaction

- https://scribeberry.com

- https://huggingface.co/openai/whisper

FREE AI FOR LITERATURE & CLINICAL SEARCH

- Use OpenEvidence or Perplexity.ai to ask:
  - "What is the best antibiotic for MSSA bacteremia in ESRD?"
- Finds peer-reviewed data
- Better than Google for nuanced clinical questions
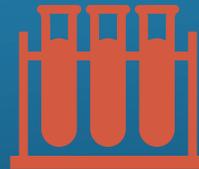- https://openevidence.com
- https://perplexity.ai
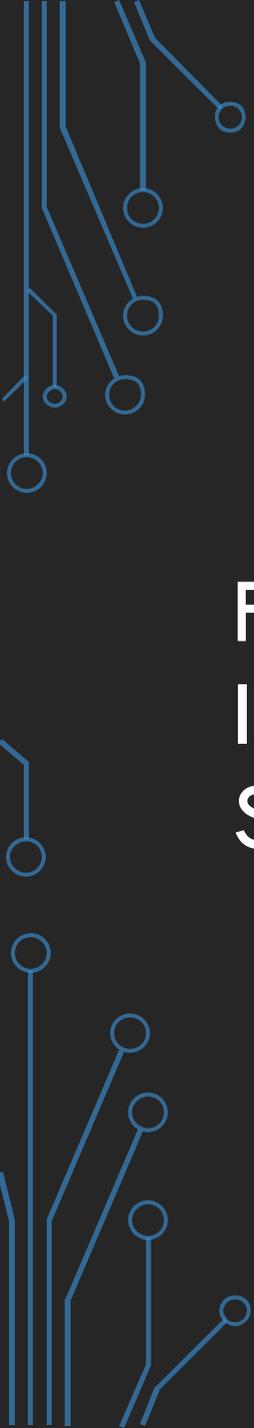
FREE AI FOR IMAGE SUPPORT

- AI X-ray/CT tools like **CheXNet demo** (academic only)

- Skin lesion tools for pattern recognition

- Use with caution – **not for diagnosis**

- https://stanfordmlgroup.github.io/competitions/chexnet

WORKFLOW OPTIMIZATION WITH AI

Task Generators: Turn to-do lists into smart trackers

Prompt Examples:

"Create a table of my next 10 discharges with pending labs"

Automate handoffs, discharge instructions, or orders templates

CAVEATS, ETHICS & SAFETY

Do NOT paste PHI into public tools

AI is not a medical decision-maker

Ensure alignment with hospital compliance policies

Use AI as a co-pilot, not a captain

GETTING STARTED — NO IT NEEDED

Task	Tool	Prompt/Tip
Discharge Summary	ChatGPT	"Summarize this for PCP"
Translate Note	ChatGPT	"Make this note 6th grade reading level"
Convert Audio	Whisper	Record → Transcribe
Quick Literature	Perplexity	"Compare DOACs in cirrhosis"

FREE RESOURCES & LINKS

ChatGPT Free
https://chat.openai.com/

OpenEvidence
OpenEvidence

Perplexity.ai
https://www.perplexity.ai

FREE RESOURCES & LINKS

Whisper AI

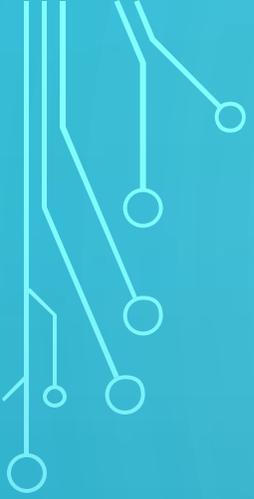https://openai.com/research/whisper

Consensus

https://www.consensus.app

FREE AI TOOLS FOR FAMILY DOCTORS

- A practical starter toolkit

- Improving efficiency, documentation, and patient care

WHY AI IN FAMILY MEDICINE?

- Reduces documentation burden

- Improves clinical decision support

- Enhances patient engagement

- Saves time and reduces burnout

CLINICAL DECISION SUPPORT

- MDCalc – evidence-based calculators

- AI chat assistants – guideline summaries

- Use with clinical judgment

DOCUMENTATION & MEDICAL NOTES

- Freed AI – AI medical dictation

- Tali AI – note generation

- Open-source AI tools

- Always review for accuracy

PRACTICE MANAGEMENT & EMR

- OpenEMR – free certified EMR

- GNU Health – open-source health records

- Potential AI integrations

ADMINISTRATIVE SUPPORT

- AI for referral letters

- Prior authorization drafts

- Patient handouts and instructions

PATIENT ENGAGEMENT

- AI symptom checkers (e.g., Ada Health)

- Pre-visit self-triage tools

- Education and follow-up support

EDUCATION & STAYING CURRENT

- Free AI-in-medicine courses

- Guideline summarization tools

- Ongoing CME support

COMPLIANCE & SAFETY

- Verify outputs

- Maintain HIPAA compliance

- Avoid PHI in non-secure tools

QUICK STARTER PACK FOR THE FAMILY PHYSICIAN

- MDCalc

- Freed AI or Tali AI

- OpenEMR

- ChatGPT Free

- Patient symptom checkers

HTTPS://AI.NEJM.ORG/

CLINICAL INFORMATICS SPECIALIST - CMIO

Domain 1: Fundamental Knowledge and Skills

Fundamental knowledge and skills which provide clinical informaticians with a common vocabulary, basic knowledge across all Clinical Informatics domains, and understanding of the environment in which they function.

Domain 2: Improving Care Delivery and Outcomes

Develop, implement, evaluate, monitor, and maintain clinical decision support; analyze existing health processes and identify ways that health data and health information systems can enable improved outcomes; support innovation in the health system through informatics tools and processes.

Domain 3: Enterprise Information Systems

Develop and deploy health information systems that are integrated with existing information technology systems across the continuum of care, including clinical, consumer, and public health domains. Develop, curate, and maintain institutional knowledge repositories while addressing security, privacy, and safety considerations.

Domain 4: Data Governance and Data Analytics

Establish and maintain data governance structures, policies, and processes. Incorporate information from emerging data sources; acquire, manage, and analyze health-related data; ensure data quality and meaning across settings; and derive insights to optimize clinical and business decision making.

Domain 5: Leadership and Professionalism

Build support and create alignment for informatics best practices; lead health informatics initiatives and innovation through collaboration and stakeholder engagement across organizations and systems.

FINAL THOUGHTS

- Collaborate and Innovate:

  - Collaboration between hospitalists, IT professionals, and AI experts is essential for the successful integration of AI in healthcare

  - By working together, we can develop innovative solutions that improve patient outcomes and operational efficiency

FINAL THOUGHTS

- Advocate for AI Adoption:

  - Advocate for the adoption of AI technologies within your healthcare organization

  - Share success stories and evidence-based benefits of AI with your colleagues and leadership to drive positive change

ERIC J. TOPOL "DEEP MEDICINE"

"THE GREATEST OPPORTUNITY OFFERED BY AI IS NOT REDUCING ERRORS OR WORKLOADS, OR EVEN CURING CANCER: IT IS THE OPPORTUNITY TO RESTORE THE PRECIOUS AND TIME-HONORED CONNECTION AND TRUST—THE HUMAN TOUCH—BETWEEN PATIENTS AND DOCTORS,"

FINAL THOUGHTS

AI won't replace doctors – but doctors who use AI may outpace those who don't

Explore, experiment, evaluate

Start small – aim for one AI task/week

Questions?

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THANK YOU

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5 WAYS AI WILL MAKE HEALTH CARE MORE HUMAN IN 2026 | ADVENTHEALTH NEWS AND STORIES