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**All relevant financial relationships have been mitigated.
All other planners/speakers have no financial relationships.**

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The Roper St. Francis Healthcare designates this enduring activity for a maximum of 7.0 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

2.00 of the 7.00 hours on pharmacotherapeutic education is pharmacotherapeutic/controlled substance prescriptive authority content. These 2.00 hours fulfill the South Carolina Board of Medical Examiners Opioid education mandate related to approved procedures of prescribing and monitoring controlled substances.

Financial Relationships:

<u>Name</u>	<u>Name of Ineligible companies with which relevant financial relationships</u>	<u>Nature of Relationship</u>
Dr. Robert Oliverio	Pfizer	Leadership Advisory Panel
Dr. Toby Fugate	Gilead Sciences	Speaker
Dr. Richard Pierce	Sensus Healthcare	Employee, Medical Director, Stockholder

**No Commercial Support was provided for this program.
No Learner contact information will be shared without learner approval.
Additional Resources have been provided in the enduring presentations.**

Artificial Intelligence (AI) in Primary Care



Andreyia Risser, MD, MBA

System Medical Director of Access - BSMH Medical Group

Richmond Regional Medical Director, Primary Care, East and Northern Neck Regions

Richmond Medical Director Provider Well-Being

Provider at Aylett Medical Center

What We'll Cover

Implementention

Understand the process of implementing an AI Virtual Scribe in Primary Care

Utilization

Review Provider utilization of AI tools

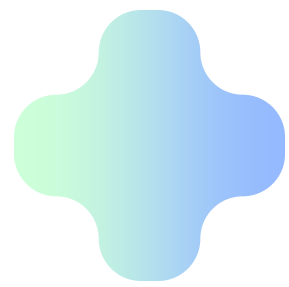
Our Patients

Discuss patient understanding of AI tools in the exam room

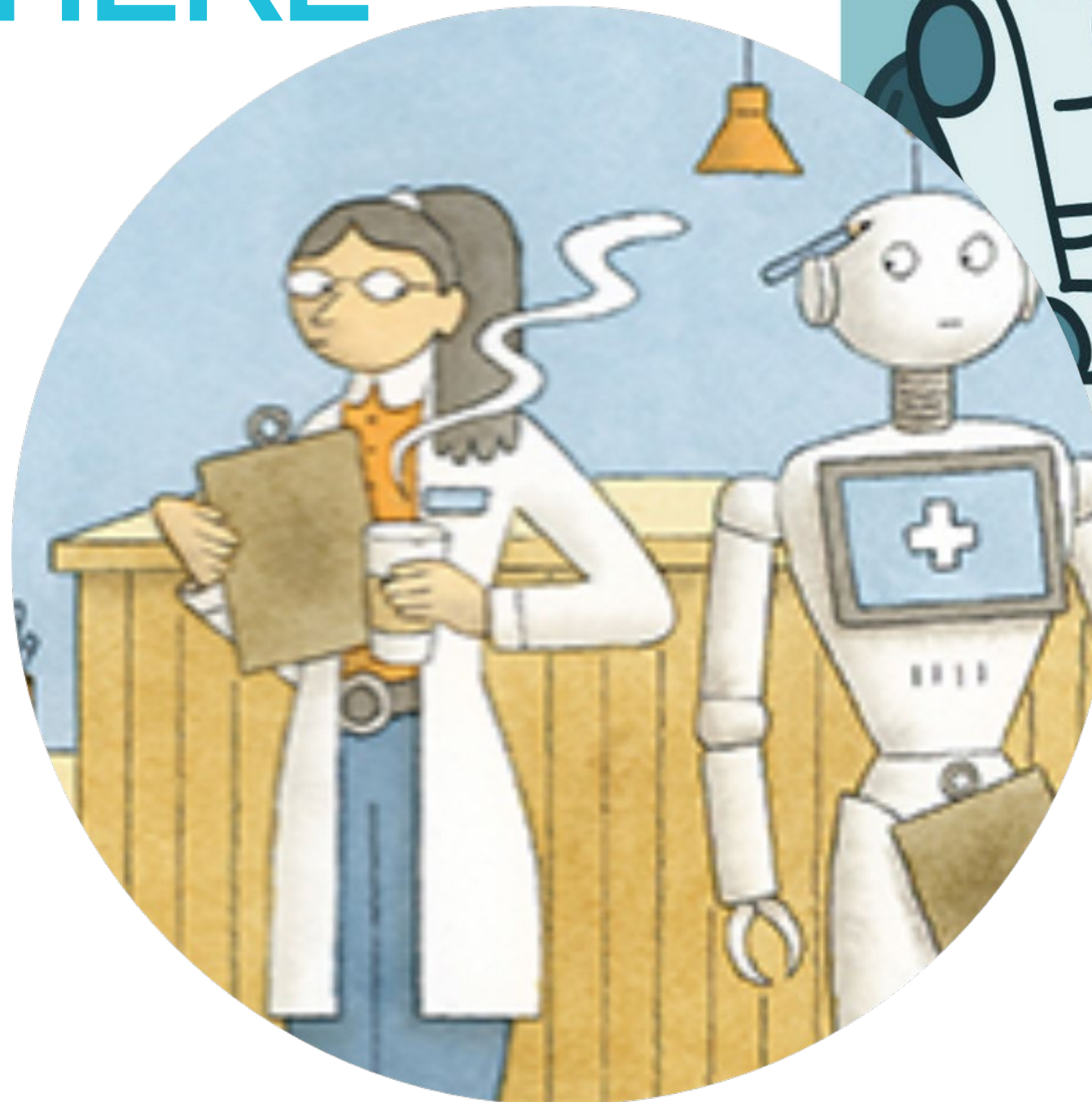


CME Disclosure Statement: F. Strait Fairey, MD – Primary Care Symposium 2025

Dr. Andrey Rissler, MD, speaker has no financial relationships with ineligible companies whose primary business is producing, marketing, selling re-selling, or distributing healthcare products used by or on patients.



AI is EVERYWHERE

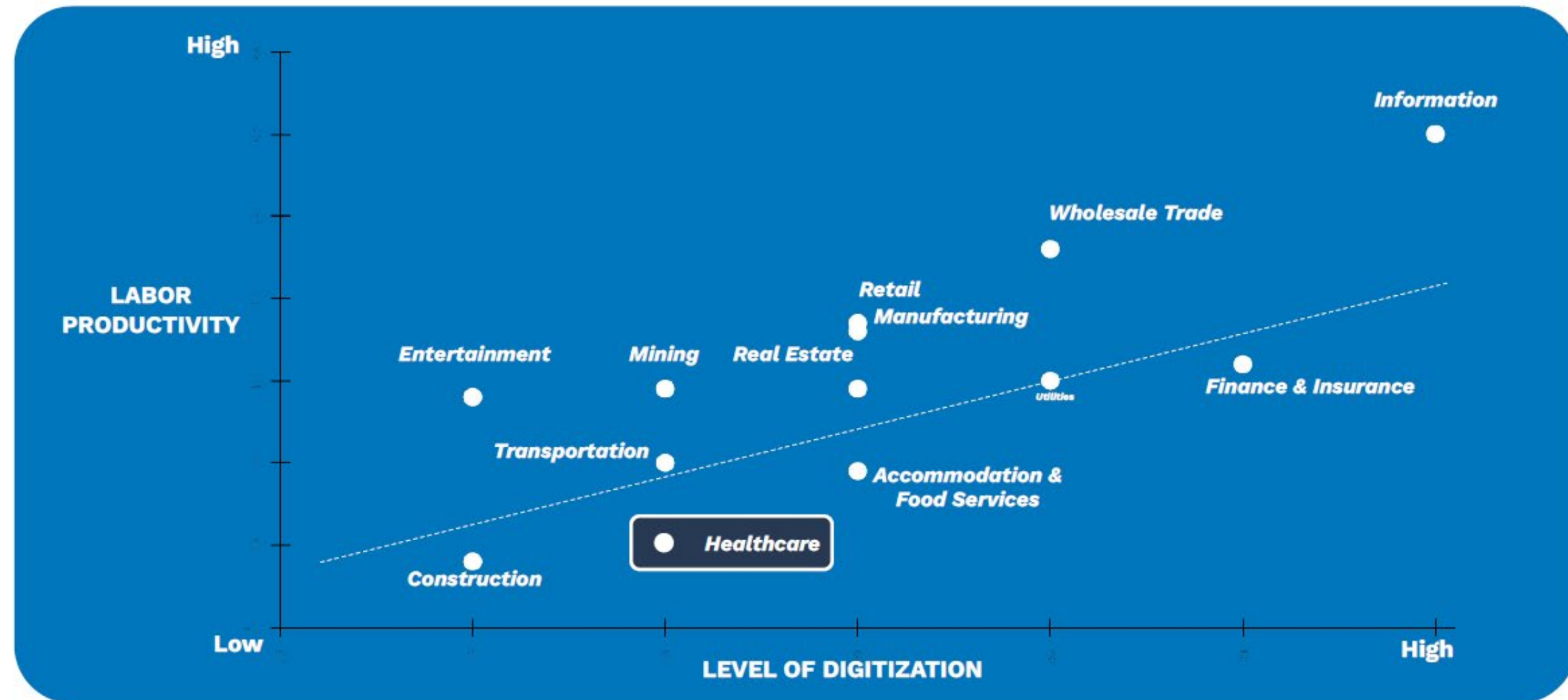


ARTIFICIAL INTELLIGENCE IN HEALTHCARE MARKET SIZE, 2021 TO 2030 (USD BILLION)



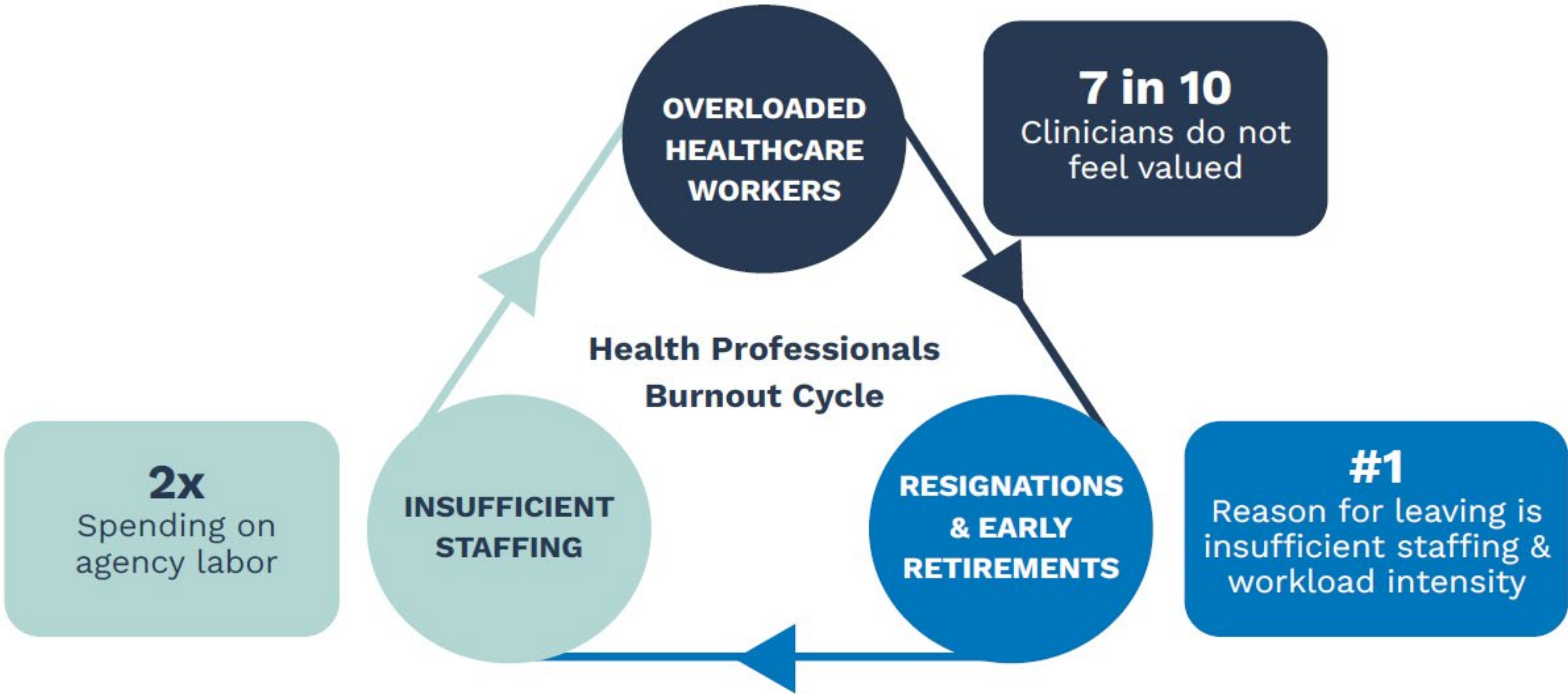
Healthcare has a Productivity Problem

Healthcare is the only industry that added technology and lost productivity



Source: McKinsey

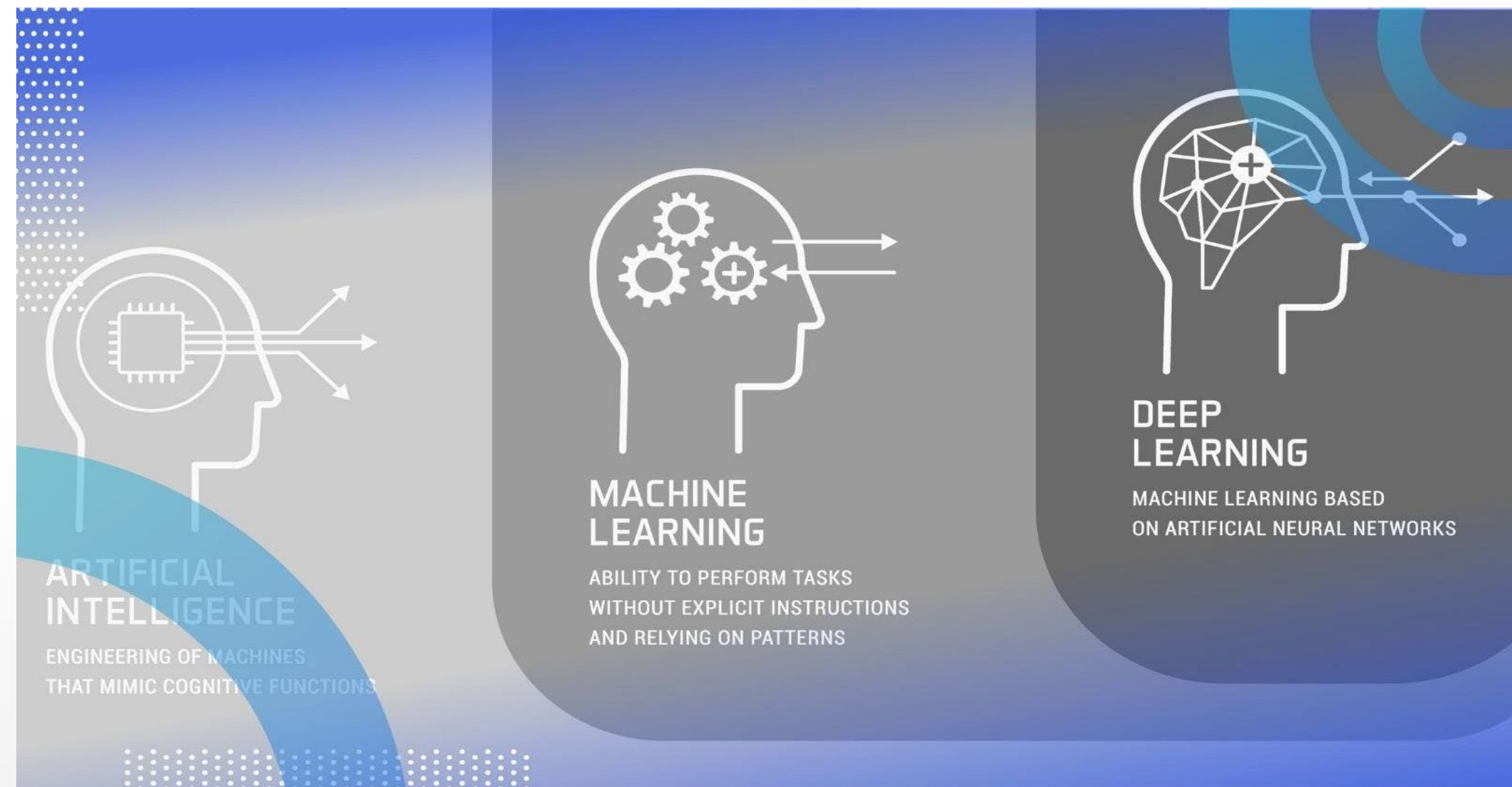
Administrative Factors Distract from Patient Care Delivery



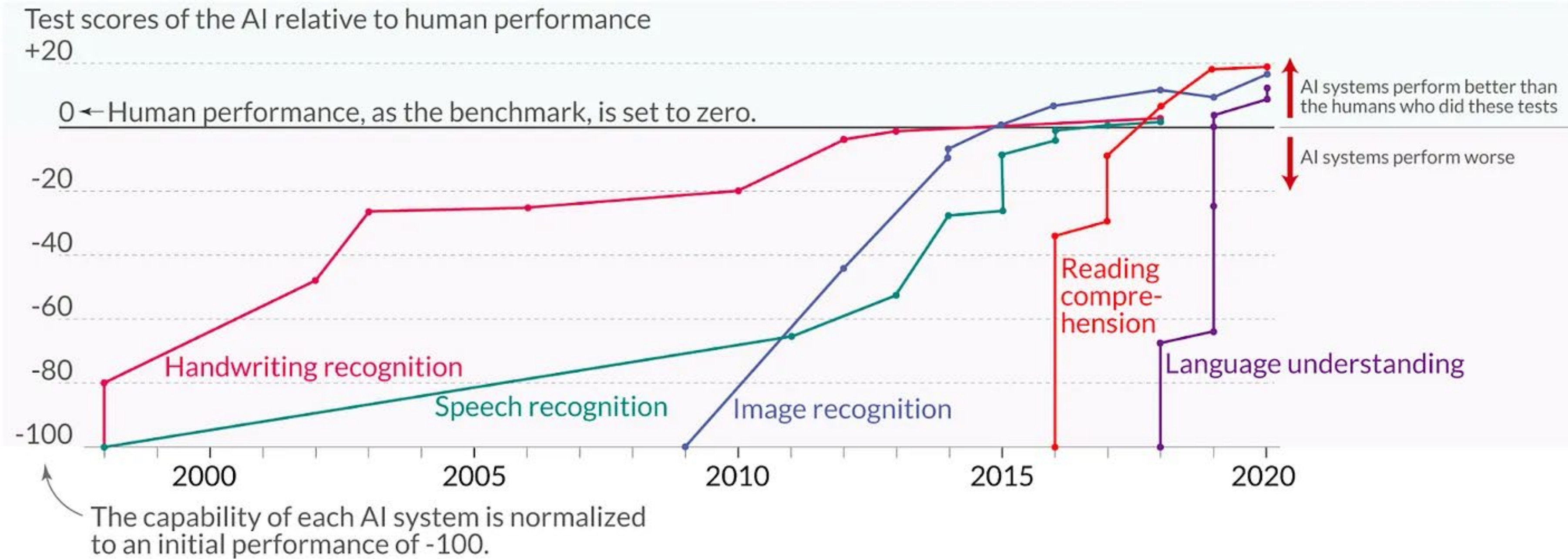
Sources: Forbes, AHA, Healthcare Finance, Fierce Healthcare

Definitions

- **ARTIFICIAL INTELLIGENCE** - The theory and development of computer systems able to perform tasks normally requiring human intelligence
- **MACHINE LEARNING** - Algorithms and models that enable computers to learn from data and make predictions or decisions without being explicitly programmed
- **DEEP LEARNING** - Uses Artificial Neural Networks, allowing them to process more complex patterns than traditional machine learning
- **LARGE LANGUAGE MODELS** - A type of AI algorithm that uses deep learning techniques and extremely large data sets to understand, summarize, generate and predict new content as a human would
- **GENERATIVE AI** - A type of AI algorithm that generates new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and make predictions, generative AI creates new content in the form of images, text, audio, and more



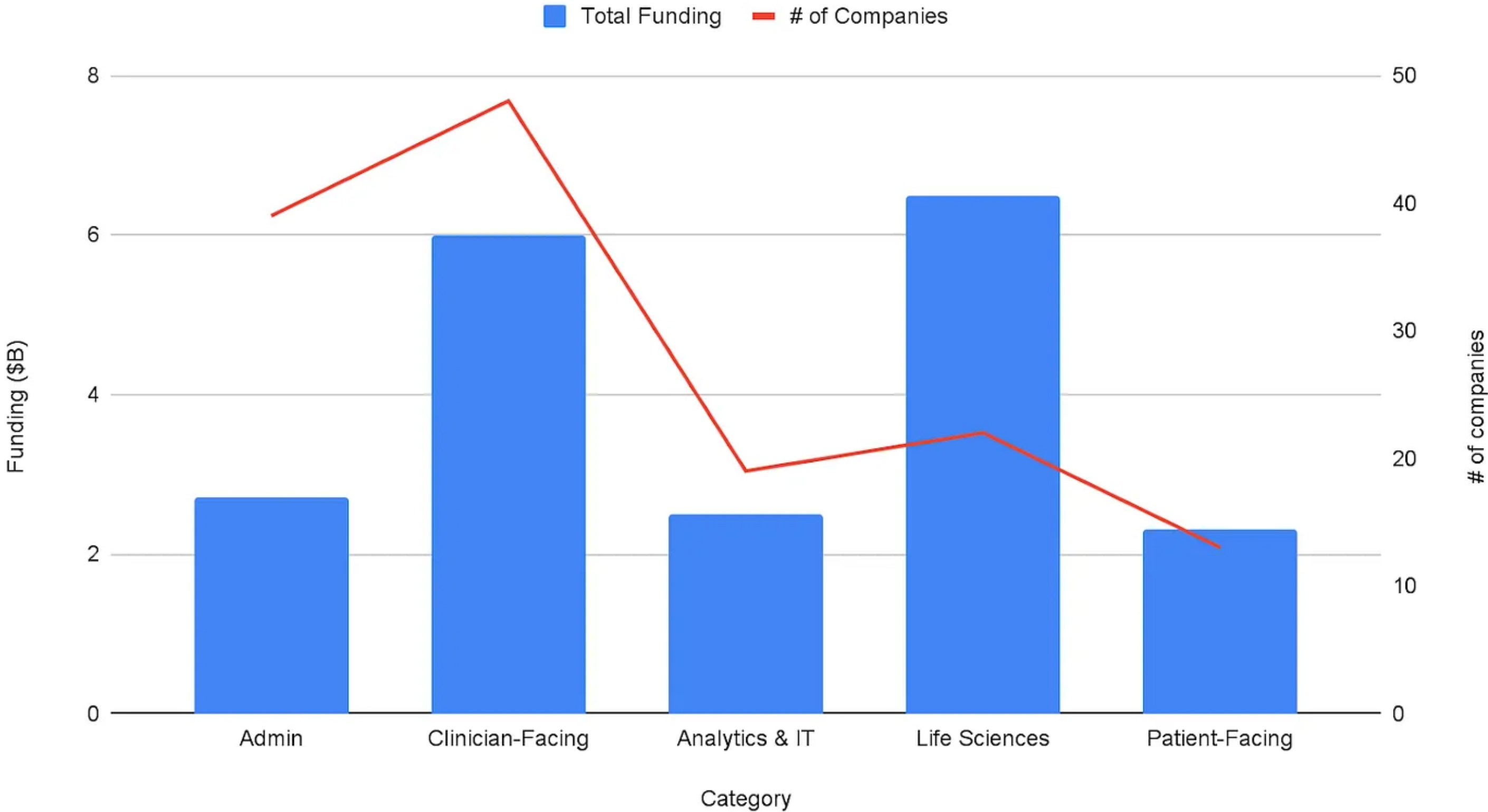
Language and image recognition capabilities of AI systems have improved rapidly



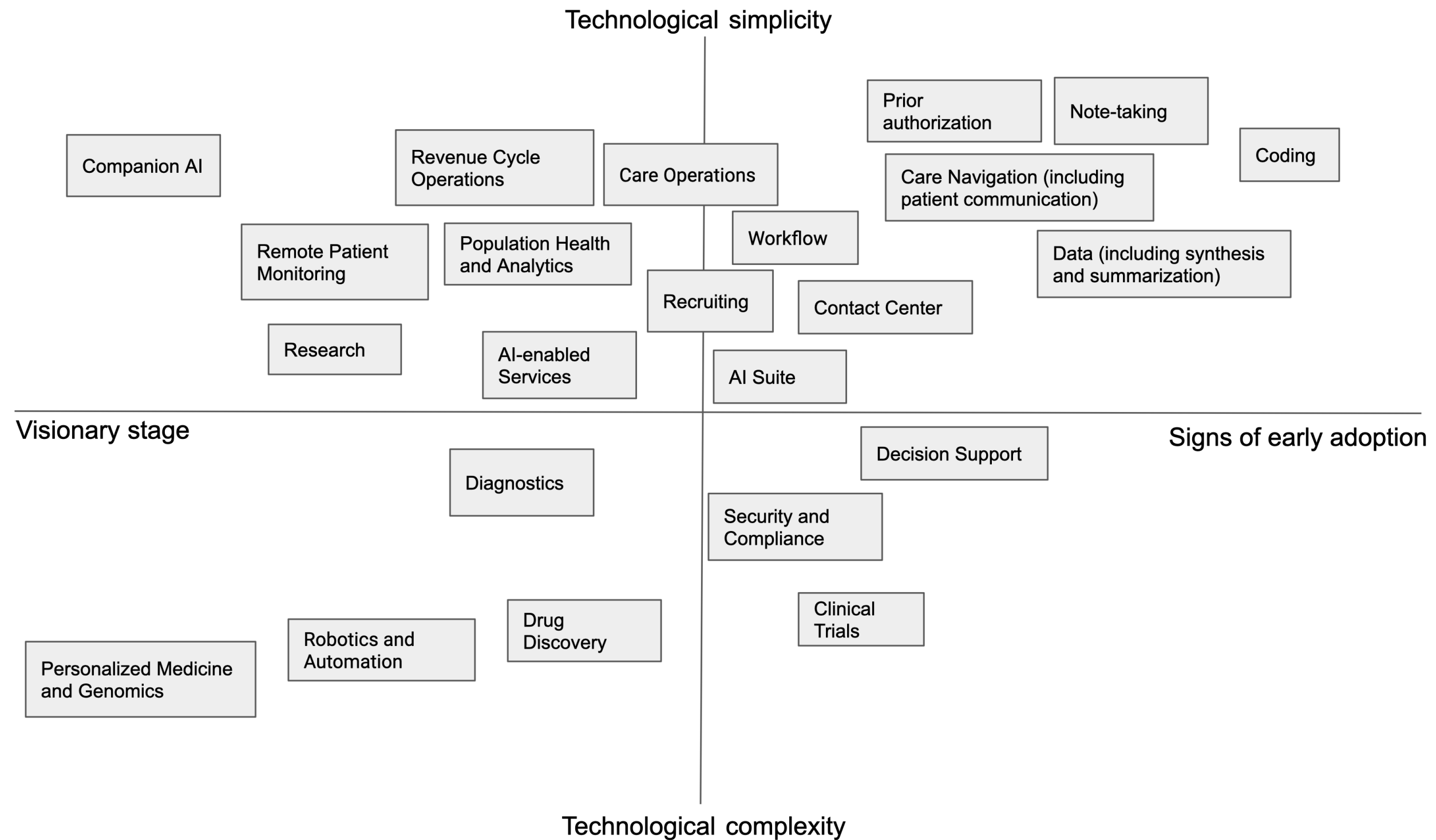
Data source: Kiela et al. (2021) – Dynabench: Rethinking Benchmarking in NLP
OurWorldinData.org – Research and data to make progress against the world’s largest problems.

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Total Funding and # of Companies

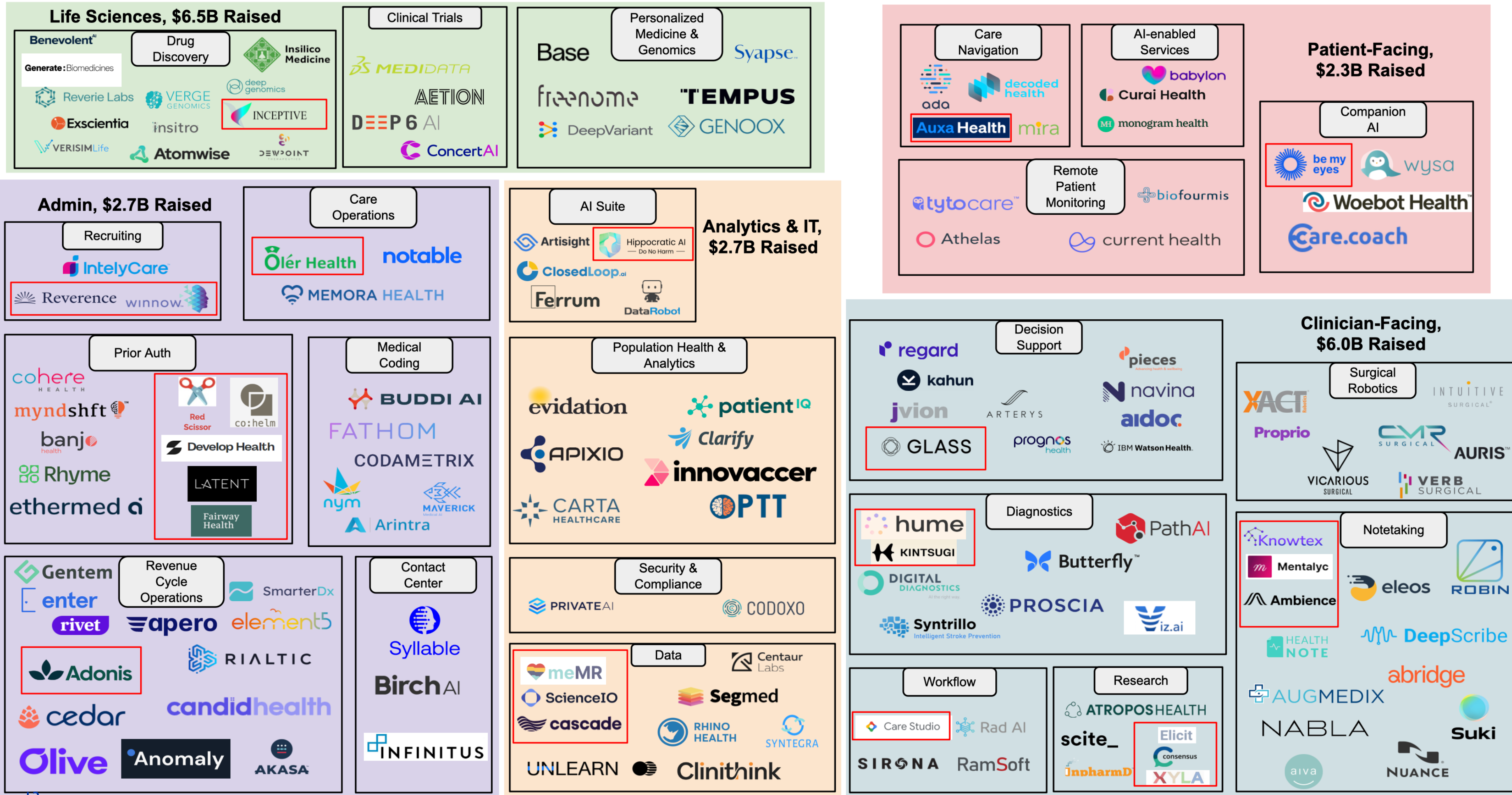


Source: AI Checkup

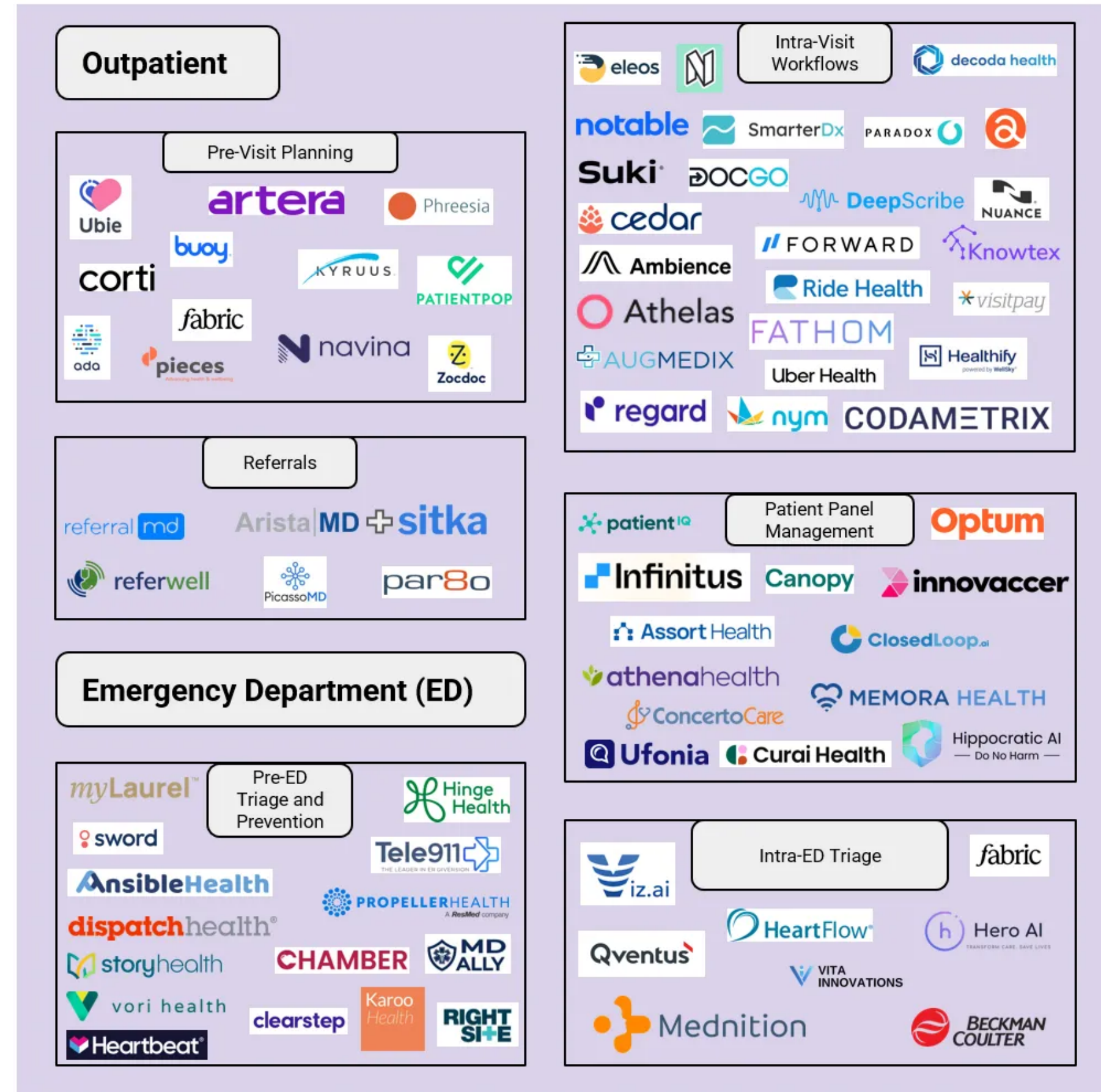


Where Generative AI Meets Healthcare: Updating The Healthcare AI Landscape

red box = launched product after 2020

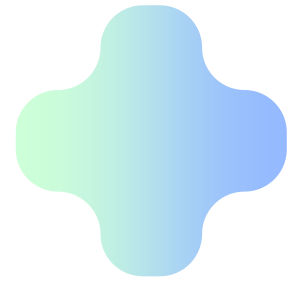


Re-Imagining the Healthcare Delivery Journey with Generative AI: Updating the Digital Health Landscape



Source 11/24

This market map has been subdivided according to the patient's care delivery journey and mirrors our healthcare delivery process maps. Notable digital health companies operating at each step have been included. Most use AI and many are working to incorporate generative AI into their offerings.



Regulation of AI:

- The FDA is positioned to regulate AI in healthcare as part of its medical device regulatory authority.
- The FDA (Food and Drug Administration) regulates AI-enabled medical products to ensure their safety and effectiveness. The FDA's approach is risk-based, and it uses a variety of methods to assess the safety and effectiveness of new AI technologies.
- On January 6, 2025, the FDA published the [Draft Guidance: Artificial Intelligence-Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations](#). This draft guidance proposes both lifecycle considerations and specific recommendations to support marketing submissions for AI-enabled medical devices.



Medical Society Opinions of AI:

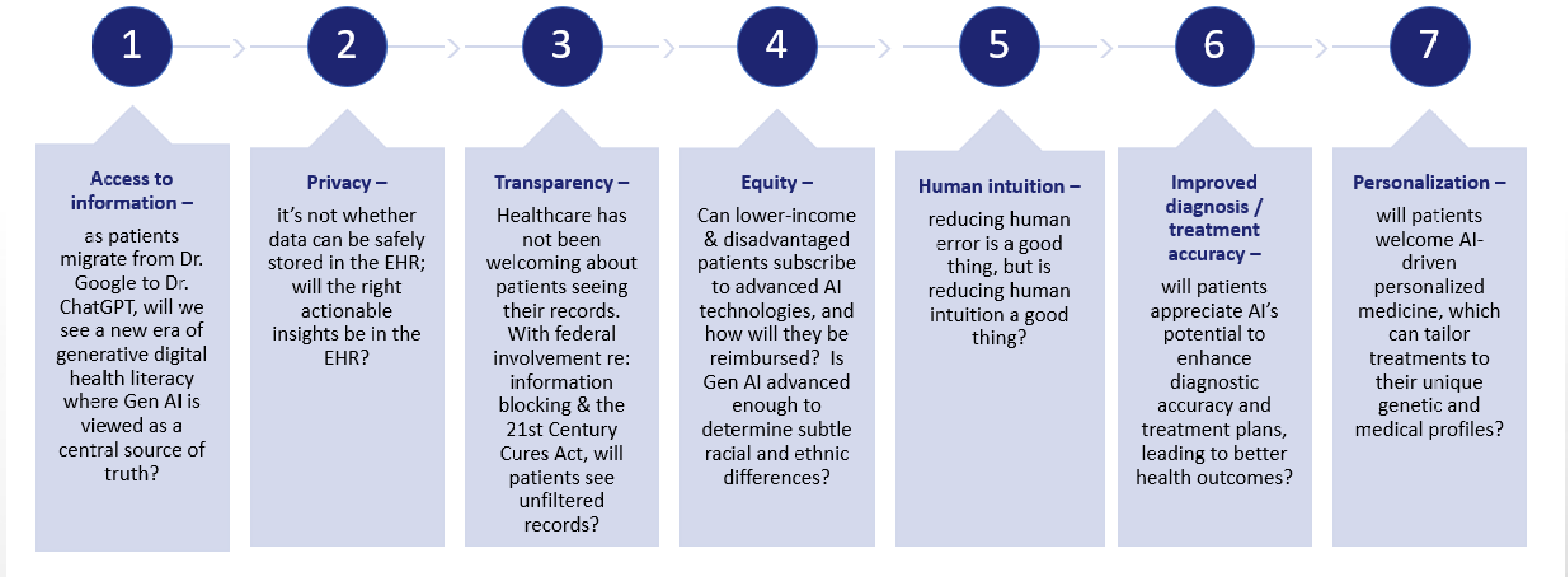


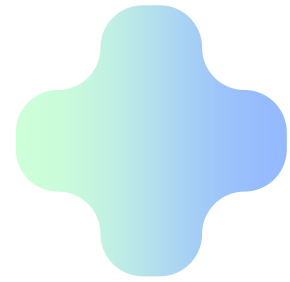
2022 - ANA believes the appropriate use of AI in nursing practice supports and enhances the core values and ethical obligations of the profession. AI that appears to impede or diminish these core values and obligations must be avoided or incorporated only in such way that these values and obligations are protected.



The AMA House of Delegates uses the term augmented intelligence (AI) as a conceptualization of artificial intelligence that focuses on AI's assistive role, emphasizing that its design enhances human intelligence rather than replaces it

Questions arise as Gen AI is changing the healthcare landscape





Enhancing Patient Monitoring: AI-Assisted Remote Care

Real-Time Monitoring

AI-powered wearable devices continuously track vital signs and activity levels, providing remote healthcare teams with real-time insights into a patient's condition.

Data-Driven Insights

AI analyzes the patient's data to detect early warning signs, predict potential issues, and provide healthcare providers with actionable recommendations.

Personalized Care

AI-assisted remote care allows for more frequent check-ins and personalized treatment plans, improving patient outcomes and quality of life.

Optimizing Treatment Plans: AI - Guided Personalized Medicine

Tailored Treatments

AI algorithms analyze patient data to identify the most effective treatments based on individual factors, ensuring personalized care.

Dosage Optimization

AI-driven systems can determine the precise dosage of medications needed for each patient, minimizing side effects and maximizing efficacy.

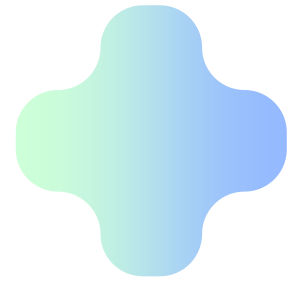
Predictive Analytics

AI models predict how a patient will respond to different therapies, enabling clinicians to select the optimal treatment plan.

Ongoing Monitoring

AI-powered remote monitoring continuously tracks patient progress, allowing for real-time adjustments to treatment plans as needed.





Streamlining Clinical Workflows: AI-Powered Decision Support

Faster Diagnosis

AI algorithms rapidly process test results and symptoms to accelerate accurate diagnoses.

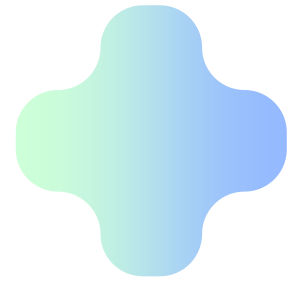
Personalized Care

AI tailors recommendations to each patient's unique medical history and needs.

Reduced Errors

AI-powered decision support minimizes the risk of human error in complex medical decisions.





Addressing Healthcare Disparities:

AI for Equitable Access

Identifying Underserved Populations

AI algorithms can analyze demographic and socioeconomic data to pinpoint communities with limited access to quality healthcare.

Targeted Outreach and Screening

AI-powered tools can facilitate proactive outreach and early disease detection among marginalized groups.

Personalized Care Recommendations

AI systems can suggest tailored treatment plans and care pathways to account for cultural, economic, and linguistic barriers.

Equitable Resource Allocation

AI can help healthcare systems optimize the distribution of resources to address disparities and ensure fair access.

AI Applications in Primary Care

Automated and Assisted
Diagnosis & Treatment

Medical Image Analysis

Medical Data Security

Virtual Assistants &
Chatbots

Automated Workflow
Assistance

Medical Risk Prediction

Patient Data Processing



How is BSMH using AI?

Of 83 AI applications in use at BSMH, very few use **Gen AI**



Supply Chain
Optimization,
AutoML

Enhancing
Clinical
Diagnosis

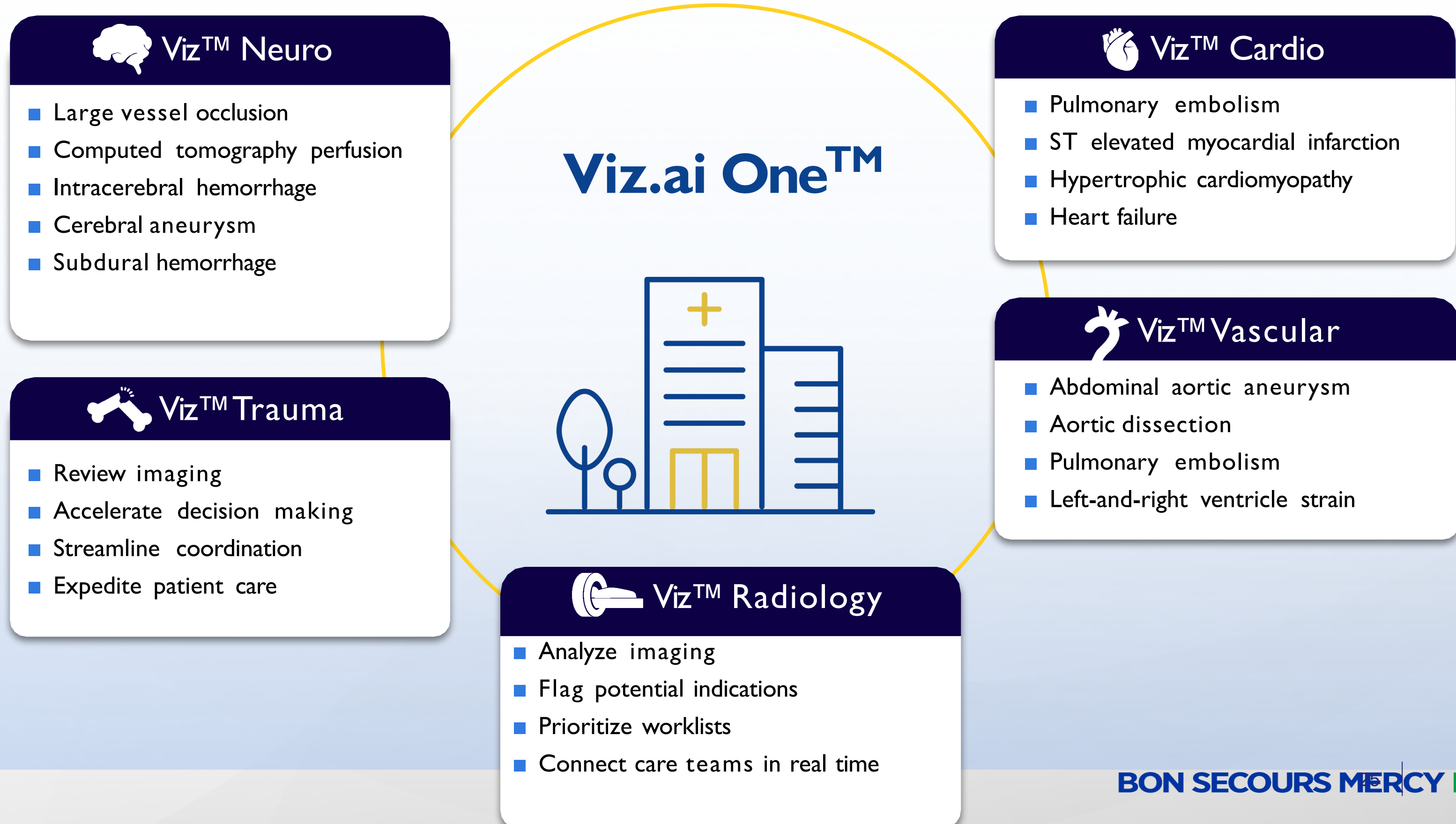
Improving
Provider
Burnout

Population
Health

Engaging
Patients and
Caregivers

Enhancing Clinical Diagnosis

The Viz.ai One™ - Platform, Many Clinical Applications



BSMH + Viz.ai by the Numbers

41

BSMH locations
using Viz.ai

435

Active users on
Viz.ai

57,509

Patients scanned
by Viz

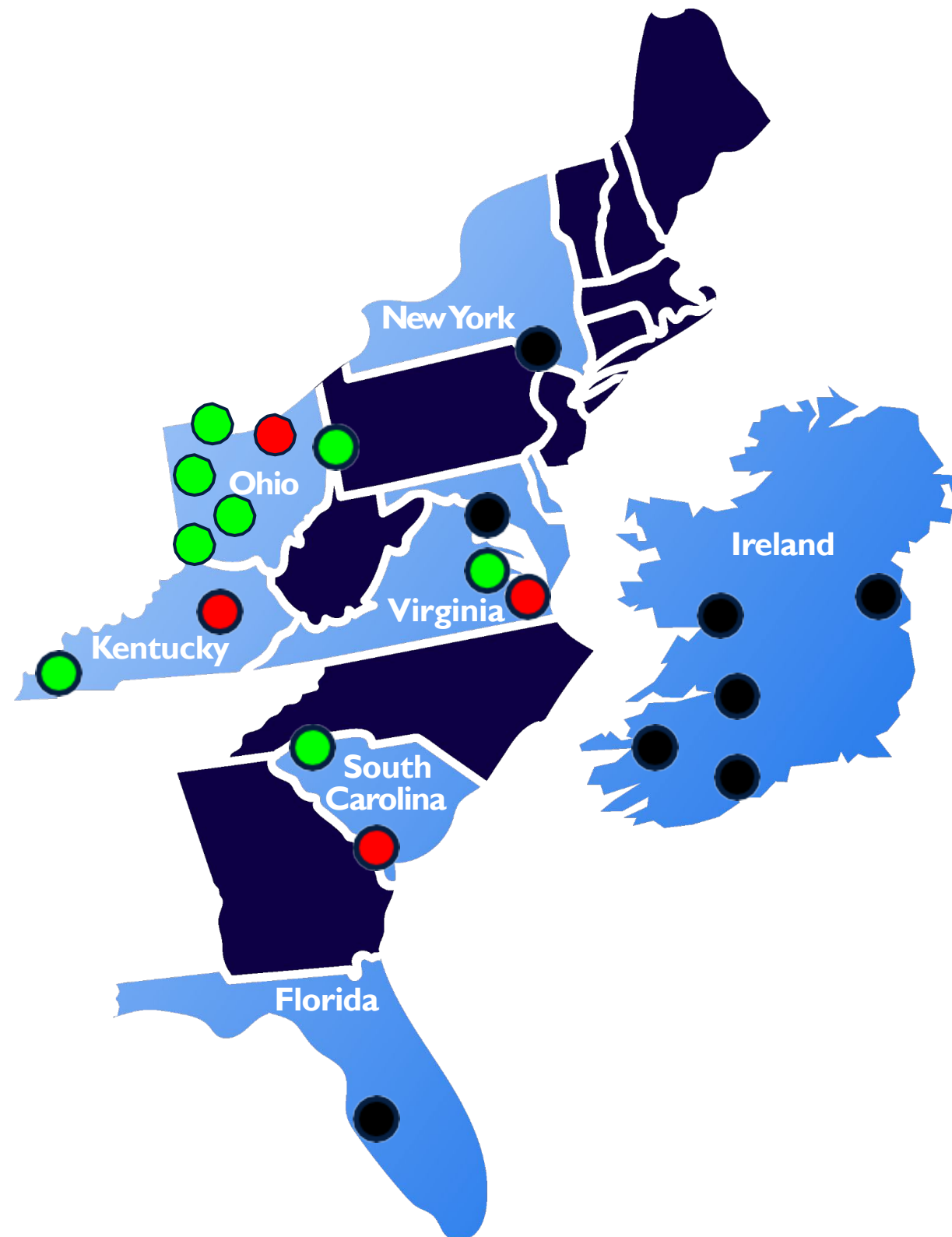
3,400

Viz LVO alerts
across all BSMH
sites

**Data is pulled since first go-live with Viz*



BON SECOURS MERCY HEALTH + Viz.ai Overview

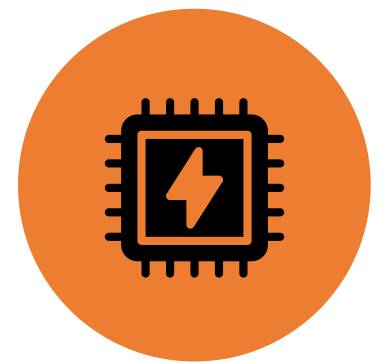


- Toledo (7)
- Richmond (7)
- Cincinnati (6)
- Youngstown (3)
- Hampton Roads (3)*
- Springfield (2)
- Lorain (2)*
- Paducah (1)
- Lima (1)
- Irvine (1)*
- Greenville (2)
- Roper St. Francis Healthcare (4)*



Automated Workflow Assistance

Tempus uses technology to read the patient records that we own, and identifies patients who meet criteria for procedural intervention



Artificial Intelligence

AI-enabled solutions to help identify and treat cardiovascular disease

60+

algorithms to identify potential care gaps across 18 cardiovascular diseases

1.5M+

patients screened

70+

hospitals nationwide are currently powered by Tempus Next

40K+

patients screened per month

Structural Cardiology ALERT Trial: Using technology to read Epic's Clarity database, Tempus identifies patients who are in need of aortic valve intervention

Navigators work lists of patients in conjunction with valve clinics, bringing patients in for TAVR's and aortic valve surgery

Using the research pathway minimizes the cost of participation

Additional modules can be used to identify patients in need of many other cardiovascular procedures

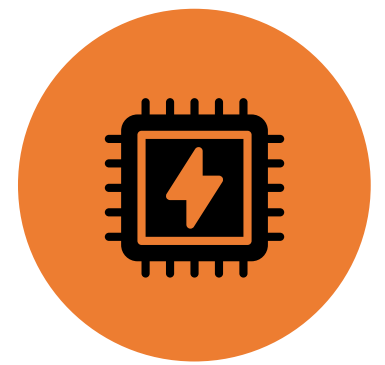
Oncology, Neurology and Radiology modules also exist



Tempus AI, Inc. (NASDAQ: TEM), a leader in artificial intelligence and precision medicine, today announced it has received 510(k) clearance from the U.S. Food and Drug Administration (FDA) for its Tempus ECG-AF device that uses AI to help identify patients who may be at increased risk of atrial fibrillation/flutter (AF). This is the first FDA clearance for an AF indication in the category known as “cardiovascular machine learning-based notification software” and paves the way for physicians to use this innovative algorithm in the care of their patients.

AF, a common cause of stroke, affects millions of people and can be challenging to diagnose. This clearance solidifies Tempus’ innovative approach to offering physicians AI-based clinical solutions that support the potential for earlier identification of cardiovascular disease and conditions. ECG-AF is the first of a suite of next generation diagnostics that

In June 2024, Tempus received the first FDA clearance for an atrial fibrillation indication in the category known as “cardiovascular machine learning-based notification software.” The Tempus ECG-AF device uses AI to help identify patients who may be at increased risk of atrial fibrillation/flutter (AF).



Strong positive impact on compliance/identification of threats through passive monitoring solution

95% accuracy rate in distinguishing between proper and improper system access

70% time savings versus non-AI legacy solutions, market leading solution in Patient Privacy Monitoring (PPM)

Without monitoring, 57% of drug diversion incidents occur for a year before identification

Proven results at clients

Drug diversion tool enabled a faster case review (down to 1.13 days to case resolution)

PPM solution reduced case resolution time by 75%

Protenus is actively engaged with BSMH on the Drug Diversion solution with the Pharmacy team and launched a PPM engagement with the Cyber Security team. They are open to broader compliance-oriented AI applications through partnership

Improving Provider Burnout

Nuance Ambient Experience (DAX)

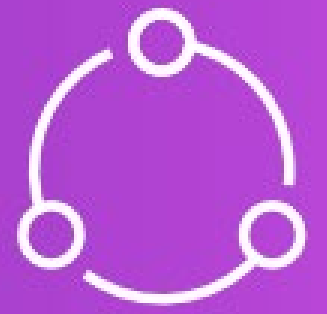
An AI powered ambient clinical intelligence solution that automatically documents patient encounters accurately and efficiently at the point of care. The DAX Copilot via Epic Haiku application allows clinicians to use their existing Epic Haiku app to record their clinician-patient encounter sessions and send them immediately to the Azure cloud for generative AI processing. As soon as processing completes, Nuance delivers the AI-generated clinical note to Epic so Epic can insert the notes in their system. The clinician can review and amend their notes, if necessary, in the Epic EHR. Clinicians will need to review and sign off on notes captured.



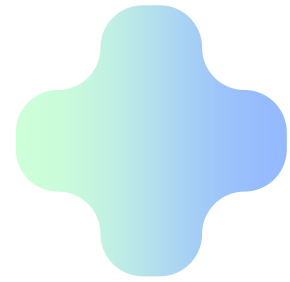
Conversational AI



Ambient AI



Generative AI



DAX Requirements

TECHNOLOGY

- Providers' **iPhones** are required for use of Epic Haiku, and they must conform with standard BSMH I&T and security policies for use.
- DAX Copilot is presently not available for iPad or Android devices, but we anticipate these devices will become compatible with the technology soon.
- Stable WiFi Connection

OTHER


- Patient consent for use of AI technology (verbal or written)
- Note template that incorporates DAX elements



DAX Copilot for Epic

Fully embedded in Epic to further streamline workflows and time savings

1 Pick patient in Haiku



View statuses and select patient from schedule

Schedule

Sun	Mon	Tue	Wed	Thu	Fri	Sat
19	20	21	22	23	24	25

- 8:00 AM Wilson, Megan
NOTE IN EHR
- 8:15 AM Doe, Joesph
PATIENT ARRIVED
- 8:30 AM Bree, Kendrick
SCHEDULED
- 8:45 AM Denise, Leila
SCHEDULED

2 Record in Haiku



Record ambient session with patient *(note: no editing in Haiku, only in Hyperdrive)*


Start a recording

Confirm the patient's consent before you start recording.

No interactions

00:10

3 Finalize note in Hyperdrive



Review, edit, and sign in EHR

[SmartSection = imported DAX summaries | SmartLink = imported patient EHR data]

Patient Info via SmartLinks

Subjective
Joseph Doe is a 65-year-old male who presents today for wellness exam.

History of Present Illness

The patient reports that although his blood glucose levels have not been as they should be, they also have not been bad. He states that his blood glucose levels at home have been anywhere from 70 mg/dL to just over 200 mg/dL, but most of them have been around 130 mg/dL to 140 mg/dL.

He denies any chest pain, shortness of breath, lightheadedness, dizziness, change in vision, fevers, chills, nausea, vomiting, diarrhea, or constipation but reports looser stools later in the day that will become watery after the 3rd bowel movement. He states that loose stools are caused by metformin, noting that the metformin XR is better than the regular metformin. He denies any numbness, tingling, or open sores on his feet.

Medications
Medformin 500 mg q.d.
Lasik 20 mg bid

Vitals
BP 125/88
Temp 98.8 F

Physical Exam

General: Well developed, well nourished, in no apparent distress
Lungs: Clear to auscultation, breath sounds equal bilaterally
Abdomen: Abdomen soft, non-tender, BS normal.
Extremities: 3 out of 4 pitting edema noted bilaterally. Feet were sensitive to light touch.
Neuro: Alert and oriented to person, place, and time.

HPI SmartSection

PE SmartSection

*Mock workflow screenshots

Pilot Results – 6 months



Executive Summary– Roper St Francis

DAX Copilot usage

DAX COPILOT USAGE

14

Active users

52%

% of purchased licenses actively used

6,719

Total encounters

OPERATIONAL EFFICIENCY

60%

Clinicians reported saving time documenting care

2.20

Minutes saved per visit per clinician

1.60

Additional patients per day per clinician

CLINICIAN SATISFACTION

60% Would be disappointed if couldn't use

60% Lower cognitive burden

80% Agree it is easy to use

PATIENT FOCUSED

80% Clinicians agree DAX Copilot improves the patient experience

80% Reduced time on average using computer during exam

SOURCE: 5 surveys completed as of 29th Sep

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Pilot Results – 6 months



Executive Summary- BSMH

DAX Copilot usage

DAX COPILOT USAGE

47

Active users

59%

% of purchased licenses actively used

30,331

Total encounters

OPERATIONAL EFFICIENCY

86%

Clinicians reported saving time documenting care

5.60

Minutes saved per visit per clinician

1.66

Additional patients per day per clinician

CLINICIAN SATISFACTION

94% Would be disappointed if couldn't use

89% Lower cognitive burden

97% Agree it is easy to use

PATIENT FOCUSED

83% Clinicians agree DAX Copilot improves the patient experience

74% Reduced time on average using computer during exam

SOURCE: 36 surveys completed as of 29th Sep

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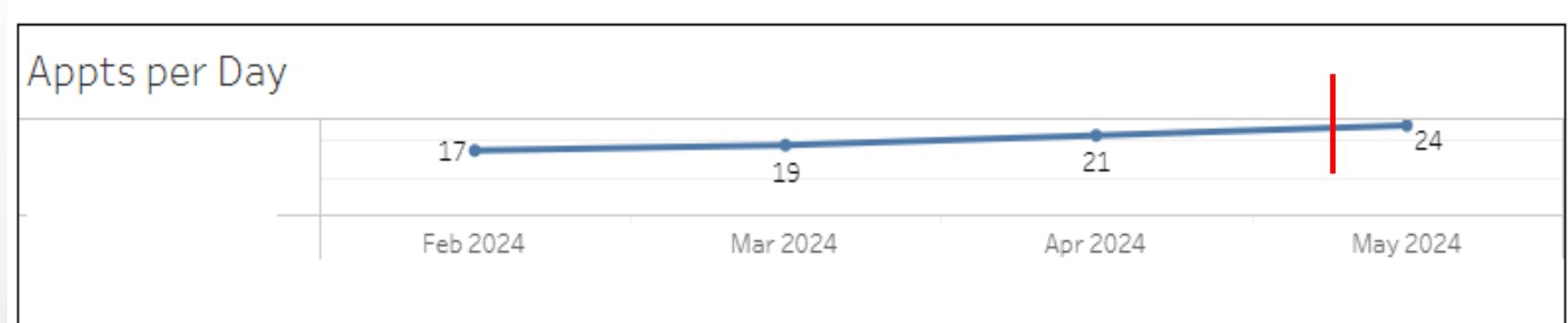
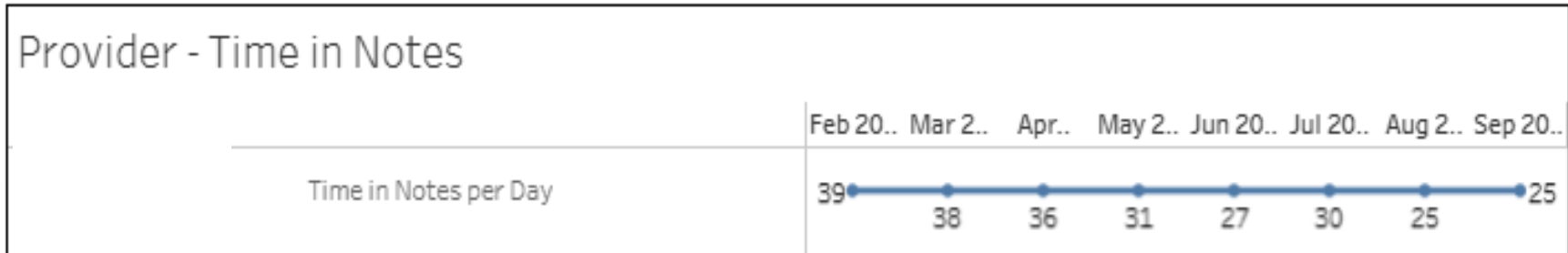
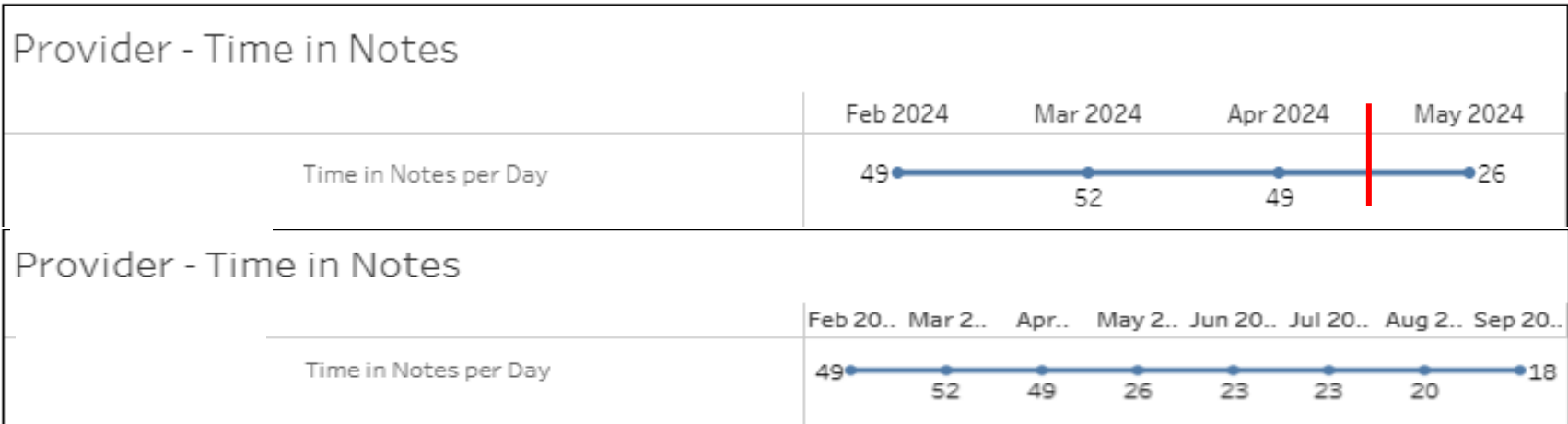
Our Six Month Data

- For the Richmond market aggregate data
 - No significant change in overall number of patients per day
 - No significant change in when appointment visits are closed
 - Slight decrease in minutes in the Notes activity per day (54 -> 43)
 - No change in pajama time



High Utilizers

- Dr. D has saved about 23 minutes time in notes in the first month and 31 minutes after six months.
- Dr. B reduced time in notes per day by 13 minutes per day over the first six months
- Dr. A has increased appts per day by about 3 appointments per day in the first month, maintained over time



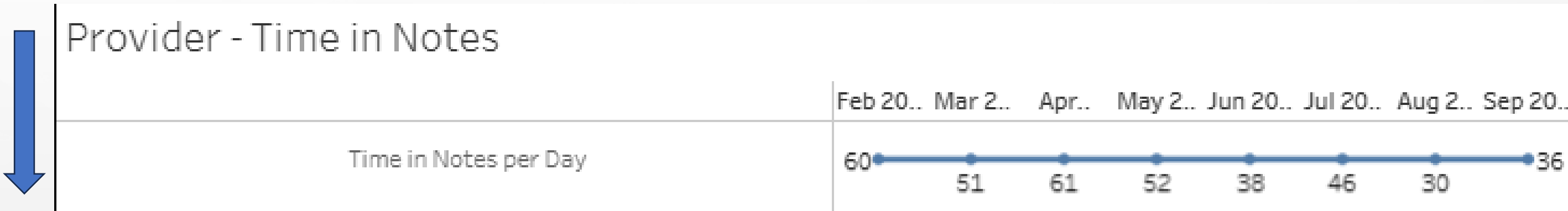
Data as of 6/20/2024

High Utilizers

NP SH decreased time in notes by **17** minutes per day!



Dr. S decreased time in notes by at least **25** minutes!



	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	TOTAL	WEIGHTED AVERAGE
I often neglect my personal needs due to the stress of my work	30.43% 7	52.17% 12	8.70% 2	8.70% 2	0.00% 0	23	1.96
My work suffers because of everything going on in my personal life	0.00% 0	21.74% 5	21.74% 5	39.13% 9	17.39% 4	23	3.52
I often need to make difficult choices between my work and my personal life	21.74% 5	60.87% 14	13.04% 3	4.35% 1	0.00% 0	23	2.00
I return home from work too tired to try to do things I wish to do	26.09% 6	65.22% 15	4.35% 1	4.35% 1	0.00% 0	23	1.87
My job makes it difficult to take care of the type of private life I might like	30.43% 7	56.52% 13	13.04% 3	0.00% 0	0.00% 0	23	1.83

	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	TOTAL	WEIGHTED AVERAGE
I often neglect my personal needs due to the stress of my work	15.29% 13	37.65% 32	20.00% 17	20.00% 17	7.06% 6	85	2.66
My work suffers because of everything going on in my personal life	2.35% 2	4.71% 4	5.88% 5	48.24% 41	38.82% 33	85	4.16
I often need to make difficult choices between my work and my personal life	10.59% 9	23.53% 20	23.53% 20	29.41% 25	12.94% 11	85	3.11
I return home from work too tired to try to do things I wish to do	12.94% 11	43.53% 37	27.06% 23	11.76% 10	4.71% 4	85	2.52
My job makes it difficult to take care of the type of private life I might like	15.29% 13	25.88% 22	22.35% 19	28.24% 24	8.24% 7	85	2.88

Repeat Well-Being Survey January 2025

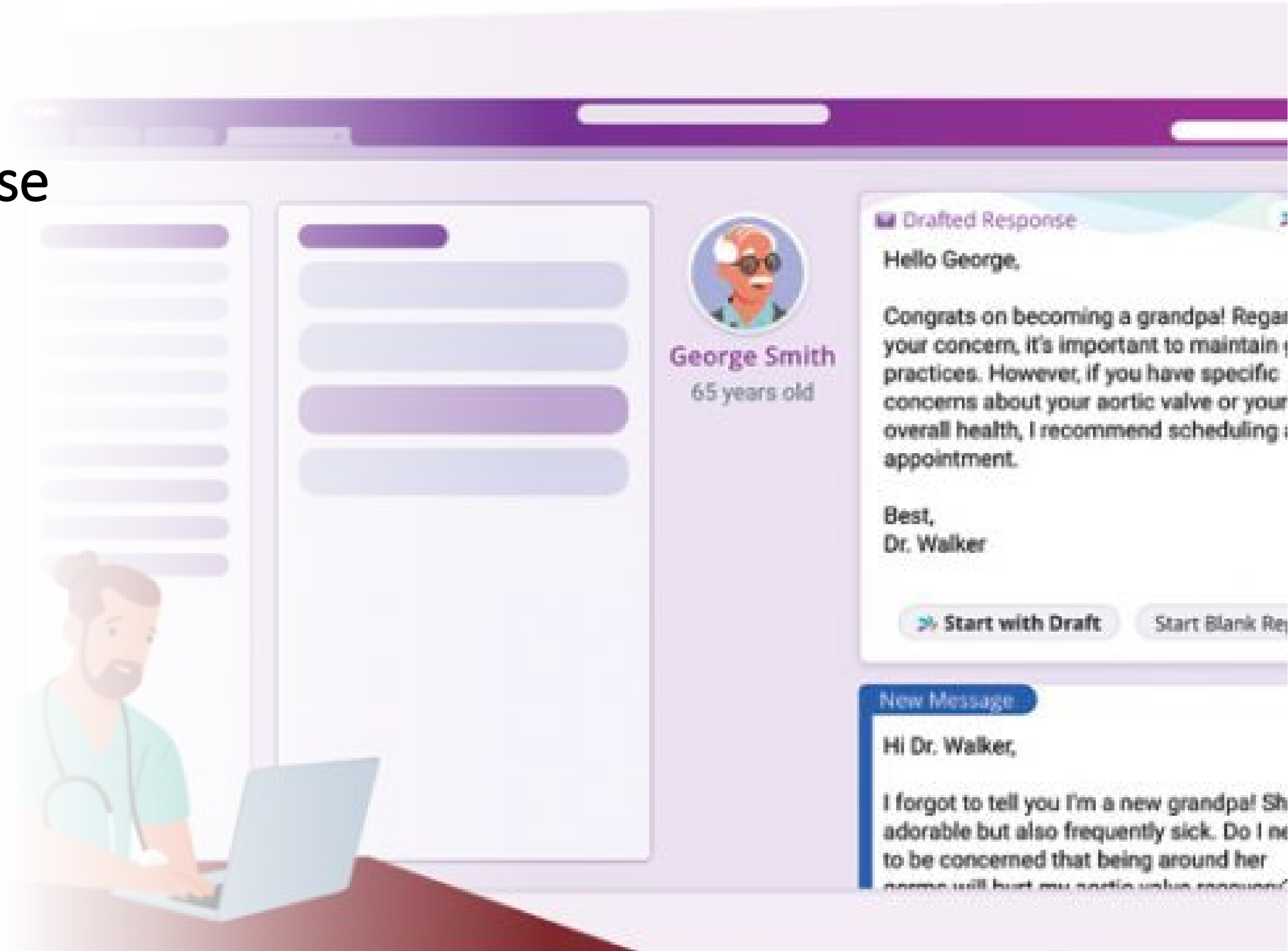
- Comments:
- I love DAX. It allows more quality time with patients and more accurate detailed charting.
- DAX captures more info than I do during a visit. However, sometimes it feels like my voice does not come through in the note. DAX is more verbose which takes time to review and read if looking back on an encounter. I am still evaluating the effectiveness of DAX regarding decreasing my charting time at home.
- Overall, very impressed by the technology. Want to utilize it to its maximum capability, so I can teach residents how this can positively impact their careers.
- It has been very helpful so far as long as I am in an exam room with good Wifi. There have been some challenges incorporating it into specialty specific documentation and combining it with existing Smart Phrases, but I've adjusted with out ambulatory site specialist and will evaluate moving forward. Would have been helpful to have on site support when I initially started using it.
- Since using DAX I go home most days with charts done. I feel more relaxed when I get home and less stressed about getting my charts done. I love DAX, has made my job a little more enjoyable.
- Using the DAX program has really improved my productivity and improved my patient interactions. I also spend less time documenting at the end of the day.

Repeat Well-Being Survey January 2025

- Comments:
- DAX is a game changer. I can leave MOST days with charts nearly completely done. I forget less information before the end of the day when I do go back to complete things. I think DAX is an exceptional tool. Attending the live session with a trainer was incredibly helpful. Patients really seem receptive to anything that helps make your day easier when I ask their consent to record the visit. It is tough to use with interpreting services- so I don't use for them but otherwise, speeds me up and has made me very happy!
- DAX has been a life changer. I am spending less time charting at home. I can get my charts almost completely done by the end of the day. My charts are probably more accurate and complete. I will continue to utilize DAX as long as it is available.
- DAX has significantly improved my feeling of burnout. I have more time to spend with my family and I can spend more time with my patients. It is a huge, huge improvement in my workflow.

Draft Replies to Patients Using Augmented Response Technology (Art)

Pilot starting now!



Generative AI Adoption

310 Organizations live
as of January 1

52k+ Users with Gen
AI features

2M /month	180k /month
Notes drafted using Ambient voice	Drafts leveraged with IB Art

“It has improved our patient experience and quality of care. **Our patients feel better connected** with us; we are there for that moment.”

“I have found having a draft to start from **helpful**, and I’m **glad I could provide feedback** on improvements and features to ensure this can be a good tool for nurses and have a **positive impact on our patients.**”

“By **leveraging Gen AI**, we are setting new standards for clinical documentation and efficiency, ultimately leading to **better patient care** and more **empowered nursing professionals.**”

Executive Overview

Executive Overview

Planning & Adoption

Governance

Webinars

Generative AI

Predictive models, machine learning, generative AI, and how they all work together in Epic workflows.

[All Discussion](#)

Announcements

Past Webinars [Show upcoming webinars](#)

Show upcoming webinars

Following Your North Star Through Epic AI in In Basket with Baylor Scott and White	8/2/2024	12:00 PM - 1:00 PM
• Webinar Recording • Webinar Slides		
★ Generative AI & Epic: In the Hospital	7/15/2024	3:00 PM - 4:00 PM
🔍 The Nursing Network: Pioneering AI for Nursing	6/28/2024	12:00 PM - 1:00 PM
• Slides • Q&A • Transcript • Recording		
Automating Your In Basket: Art at Ochsner	6/18/2024	1:00 PM - 2:00 PM
• Webinar Recording • Webinar Slides • Smartlists in Your Responses • Smartlists in Your Responses (v 2.0)		
★ Generative AI & Epic: Coding	6/10/2024	1:00 PM - 2:00 PM

[Show more...](#)

Keith Morse describes Standard Children's Health's strategy as, "We want very much to be cutting edge, but we have a very strong aversion to additional risk for our patients. We have a couple of rules of thumb we go by: a human in the house for everything we do, and, for GeneSieve, All we are not going to touch mutant cells in any way."

Drafted In Basket Responses



AVAILABLE NOW

Reporting

for understanding time saved

Include conversation history

for more tailored responses

Proxy support

for expanded use cases

Drafts for result notes

for expanded use cases

Updated default prompts

for easier prompt engineering

 Draft by Art

Generated at: 6/18/2024 9:56 AM.

Hi George,

You've got it right. Jessica's lab test is now scheduled at the health center on 11/2 before her allergy appointment. The video visit is set for 11/5. No worries at all, it's understandable that things can get a bit hectic. If you have any more questions or need further clarification, feel free to ask.

Dr. Walker
Dr. Walker

   Learn More

 Start with Draft

Start Blank Reply

 Lab test dates?

(Newest Message First)

George Adams (Proxy for Jessica Adams) → supporting Drew Walker, MD


Just now (4:55 PM)

Hi Dr. Walker,
just confirming... instead of the previous plan to do the lab test on 10/24 at the hospital, and then a video visit with you on 10/25, we'd do the lab at the health center on 11/2 before her allergy appointment? Then we're doing the video visit on 11/5? Did I get all that right? Forgive me... it's been a crazy week.
-George



CURRENT

Drafted In Basket Responses




 Draft by Art


Generated at: 6/18/2024 9:56 AM.

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Dr. Walker

   Learn More

 Start with Draft

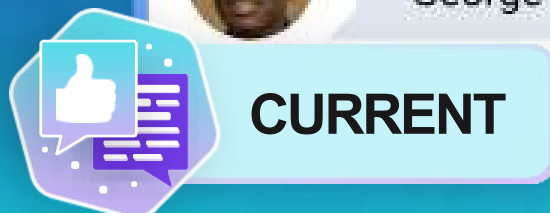

Start Blank Reply

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-George



COMING UP NEXT

Tools to quickly edit the draft
for increased efficiency

Personalization of the draft
for more tailored responses

More categories supported
for expanded use cases

Our Vision

**Epic-owned prompts with
customization option *for long term
maintenance***

In Basket Art

153 Customers live
1M/mo Drafts generated

Reduce Burnout



72% Reduced cognitive load

Physicians found **74%** of drafts to be helpful

Faster answers for patients

Turnaround answers decreased to...

 **OchsnerHealth**

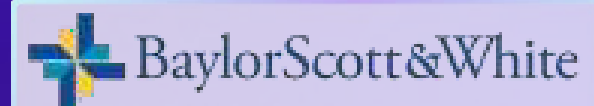
2 hours on avg for MAs

Save Time

Saving users an average of...

 **UCI Health**

43 seconds per message



Physicians leveraged draft **44%** of time
APPs leveraged draft **55%** of time

 **Mount Sinai**
MEDICAL CENTER

3.5 hours on avg for physicians

Engaging Providers and Patients

Catherine: a digital assistant first used for the dementia care journey; now being adapted for use in orthopedics

Gen AI

My Mother seems safe at home for now, but any suggestions to put more safety in place?



Catherine MVP

It is important to ensure that your loved one's home environment is safe and secure for them. Here are some tips for making sure the home is safe:

- Install door locks if they are not already present, or motion sensor alarms to alert you when someone has gone out of a certain area.
- Equip bathrooms with nonslip floors/mats, raised toilet seats, grab bars etc., to minimize the risk of falls.
- Remove any tripping hazards like throw rugs or electrical cords from pathways in the house.
- Label drawers, shelves, and cupboards with pictures or words to help remind them where things go in case they get disoriented.

Catherine Custom LLM

Sure, I'd be happy to help! **Can you tell me a bit more about your Mother's home environment and current situation?** For example, does she live alone or with others, and are there any hazards or obstacles that could pose a risk to her safety? Additionally, what kind of support services or resources are currently in place to help her manage daily tasks and maintain her independence? **This information will help me provide more targeted suggestions for improving safety.**

Catherine is the first example of the intentional application of a layer of empathy to a digital marketing assistant.

Catherine McAuley, founder of the Sisters of Mercy

Catherine Demo

• • PRESS RELEASE • •

Brado and Accrete Expand Conversational AI Engagement Platform into Orthopedic Service Line

[Print This Page](#)

📅 September 27, 2024 ⌚ 4:15 pm

In a high-tech, complicated world, consumers want answers instantaneously. But when it comes to their health, they not only want guidance quickly — they crave a higher-value, more [compassionate approach](#), too.

That's precisely why [we created Catherine™](#), an AI Conversational Engagement Platform that helps people navigate the dementia caregiver journey with more empathy and confidence. Due in large part to Catherine's success, we're expanding into additional journeys — starting with orthopedics.

Bridging the Healthcare Communication Gap

Virtual Assistants and Chatbots

Bon Secours Mercy Health & Hyro Partnership Overview

April 2024



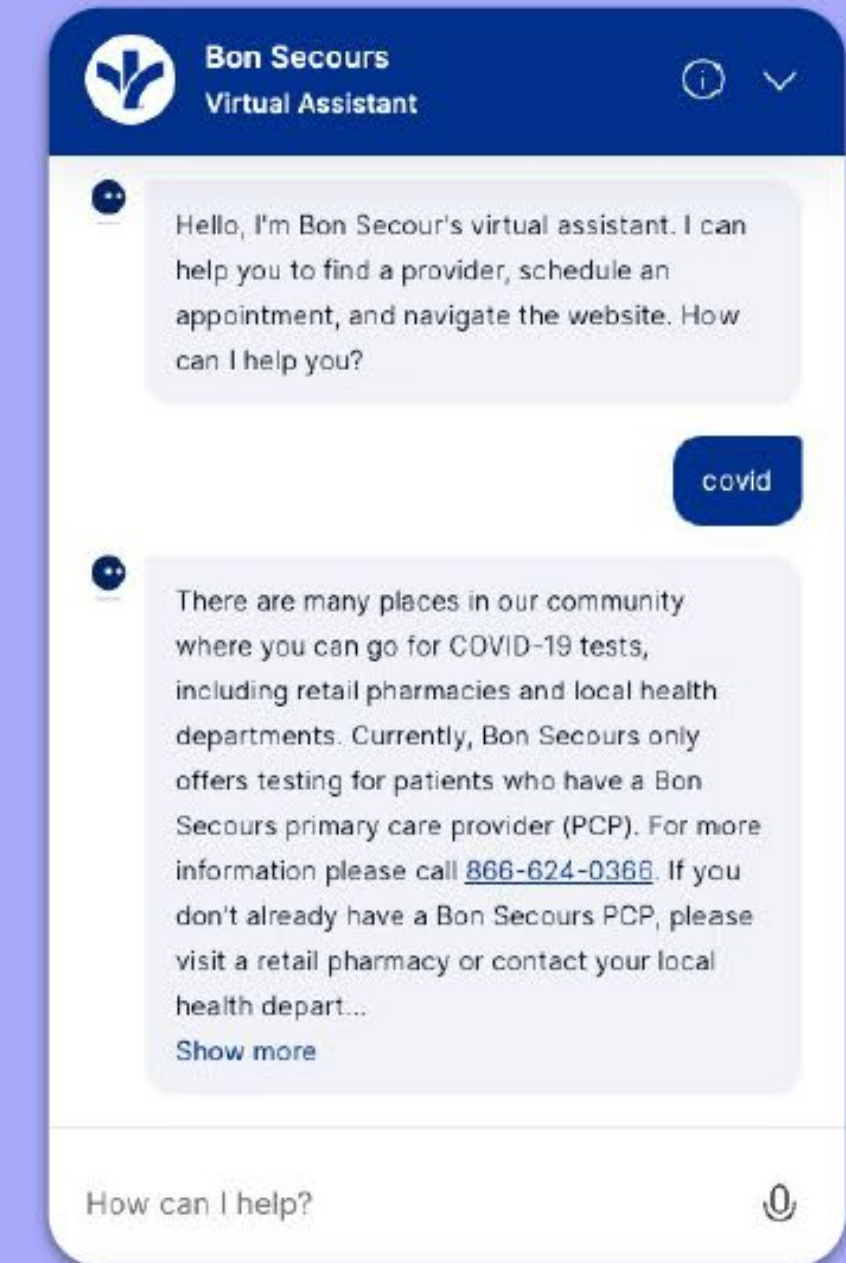
Where we *started*

Once upon a time...

Free COVID Web Assistant

Hyro and Bon Secours Mercy Health began our partnership with our initiative to provide healthcare systems like yours with free COVID - 19 assistants during the pandemic.

The assistant scraped your website as well as the CDC's latest updates to provide your patients with the most up to date information during the pandemic.



Where we are in *Present Day*

We have come a long way! Your web assistants now include the following skills.



Find a Provider

Patients can easily browse physician profiles and drill down by multiple attributes through NLU-enabled dialogue.



Spot

Assistant scrapes the most relevant content on your website through GPT to generate instant, human-centric answers.



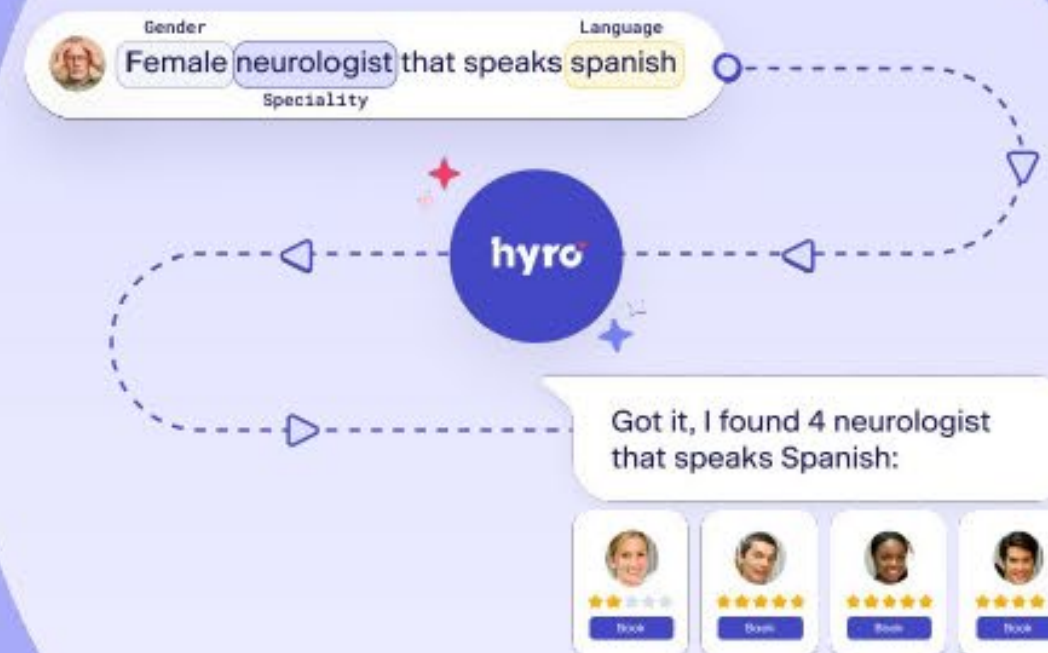
Find a Location

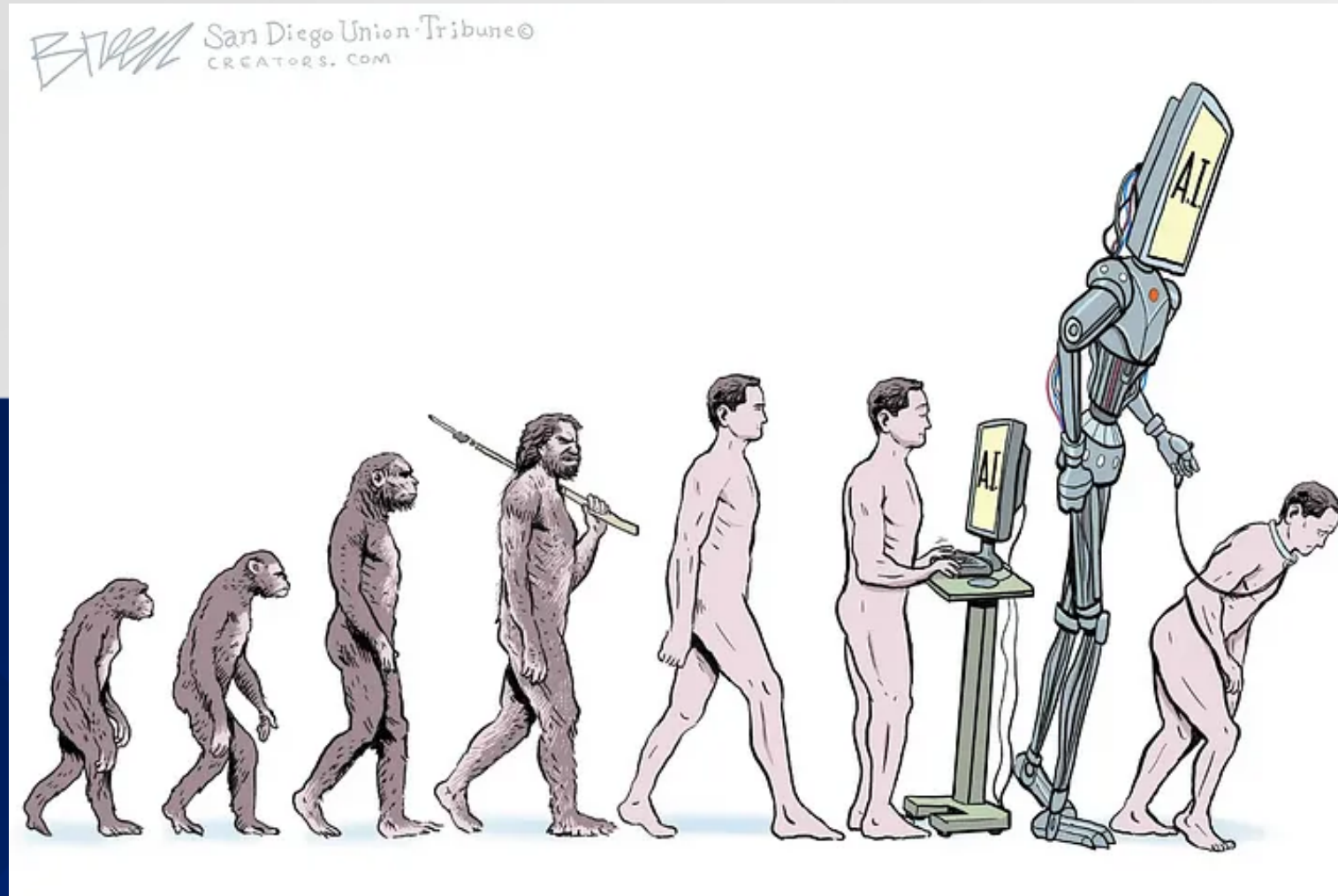
Patients can easily browse clinic and hospital locations and drill down by zip code or other attributes.



FAQs

Understand exactly where answers are sourced from, and create customized outputs for full visibility and accountability.





What is coming next...

Generative AI & Epic

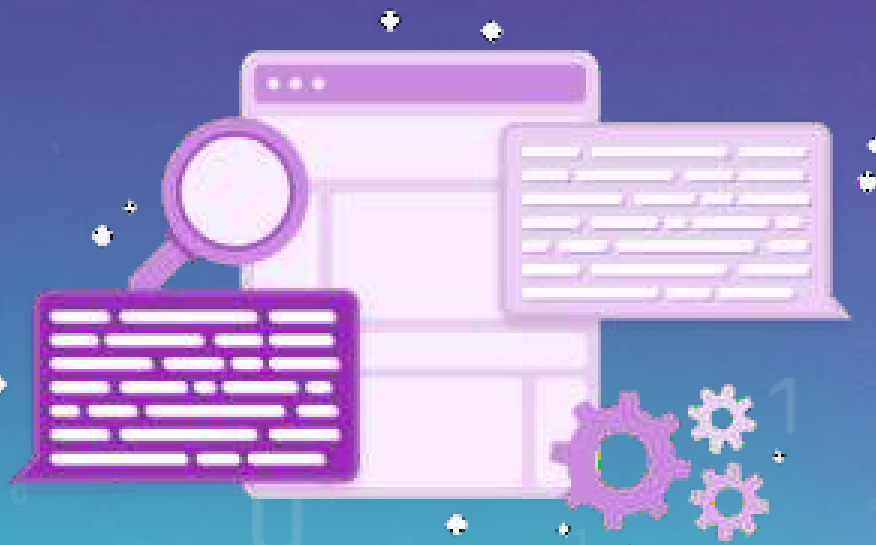
Draft Text



Generate Summaries



Translate Content



Task Automation





Doctors



AVAILABLE NOW

In Basket Art *Generate draft response to patient messages*

Outpatient Summaries *Summarize notes and CE data*

Inpatient Summaries *Review recent events, assessments, notes, etc.*

AI Text Assistant *Adjust writing for brevity and reading level*

Ambient Notes *Write visit notes based on conversation with patient*



COMING UP NEXT

Discharge Summary *Generate draft hospital course summaries*

Level of Service *Recommend level of service to providers*

Free Text to Discrete *Automatically document synoptic forms*

Quality Metrics *Identify quality metrics in free text pathology reports*

Cancer Staging *Identify staging data from clinical notes*

Epic & Generative AI



AI is built into Epic and already in use. Multiple AI-assisted workflows are now available to Epic customers in the US, Europe, and Canada. New AI-assisted workflows are being added frequently.



Live and in use



In testing at health systems *(Available soon)*



In development



Stay tuned

Simplify Documentation

Reduce time spent at the keyboard by having the system:

- ✓ Generate In Basket responses to MyChart messages.
- ✓ Write visit notes based on conversations with ambient voice technology.
- ✓ Adjust notes, correspondence, and patient education for factors like brevity and reading level.
- ✓ Generate utilization review summaries.
- ✓ Document flowsheets with ambient voice technology. *Q3 2025*
- ✓ Generate care plan notes for nurses. *Q4 2025*
- ✓ Generate hospitalists' course summaries and discharge summaries. *Q2 2025*
- ✓ Nudge physicians with opportunities to improve clinical documentation. *Q1 2026*
- ⚙ Generate MyChart result comments for patients. *2025*
- ⚙ Help cardiologists write case narratives. *2025*

Generated documentation is reviewed by clinicians before sending.

Tailor Communication

Communicate better by having the system:

- ✓ Help translate clinical and scheduling questionnaires into additional languages.
- ✓ Revise letters, patient instructions, and patient message responses to use less technical language.
- ✓ Transform questions into reporting queries.
- ⚙ Answer patients' billing questions in plain language. *Q3 2025*
- ⚙ Remind patients of visit instructions in MyChart. *Q4 2025*
- Write patient instructions, including ED discharge instructions, based on clinical notes.

Epic & Generative AI



AI is built into Epic and already in use. Multiple AI-assisted workflows are now available to Epic customers in the US, Europe, and Canada. New AI-assisted workflows are being added frequently.

- ✓ Live and in use
- ✓ In testing at health systems *(Available soon)*
- ⚙ In development
- Stay tuned

Summarize the Chart

Reduce time spent searching the chart by having the system:

- ✓ Summarize recent notes before a visit.
- ✓ Provide a review of the previous shift.
- ✓ Analyze dashboard for key takeaways.
- ⚙ Summarize the patient journey and SDOHs for care transition planning. *Q1 2025*
- ⚙ Gather medications, results, and other details relevant to answering a MyChart message. *2025*
- ⚙ Summarize results for patients in MyChart.

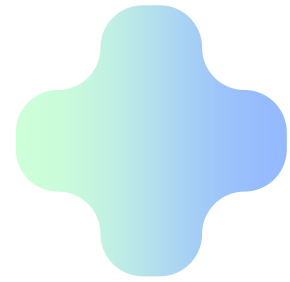
Automate Actions

Reduce staff time spent on administrative work by having the system:

- ✓ Extract follow-ups from imaging reports.
- ✓ Draft denial appeals letters.
- ✓ Recommend codes from clinical details.
- ✓ Find clinical documentation improvement opportunities and prioritize reviews. *Q3 2025*
- ✓ Answer patient questions, schedule follow-ups, and address patient questions with chat bots. *Q2 2025*
- ✓ Generate content for your campaigns. *Q1 2025*
- ⚙ Queue up orders mentioned during the visit with ambient voice technology. *2025*
- ⚙ Use conversational language to bring up answers quickly. *2025*
- ⚙ Calculate a level of service from clinical details. *Q3 2025*
- ⚙ Justify medical necessity for medical prior auths. *Q1 2025*
- ⚙ Identify clinical risk adjustments. *Q3 2025*
- ⚙ Suggest discrete instructions to complete refill requests more quickly. *Q3 2025*
- ⚙ Automatically document synoptic forms. *Q3 2025*
- ⚙ Extract colonoscopy quality metrics from pathology reports. *2025*
- ⚙ Spin up draft MyChart microsites. *Q1 2025*
 - Identify cancer staging data from notes. *Q1 2026*
 - Retrieve discharge insights from notes.

Last updated: November 18, 2024

AI Considerations



Ethical Considerations: Ensuring AI Accountability in Healthcare

As AI becomes increasingly integrated into healthcare, it is crucial to address ethical concerns and ensure accountability. Healthcare decisions have profound impacts on people's lives, so we must safeguard against the misuse or biased application of AI technologies. Transparent algorithms, robust validation, and strong governance frameworks are essential to building trust and maintaining patient privacy. Additionally, we must carefully consider the equitable distribution of AI-powered healthcare services to prevent exacerbating disparities. Continuous monitoring and adjustment will be needed to ensure AI systems promote fair and ethical outcomes for all patients, regardless of their background or socioeconomic status.



Benefits:

AI holds the potential to enable physicians to more closely embody the Hippocratic Oath

HIPPOCRATIC OATH TENETS:

- Practice medicine to the best of one's ability
- Share knowledge with other physicians
- Employ sympathy, compassion, understanding
- Help to prevent disease whenever possible
- Respect the privacy of patients



Artificial Intelligence Can:

- Improve decision making
- Democratize best practices
- Help providers focus on the patient
- Proactively identify at-risk patients
- Protect privacy with safe data practices



Risks: Ethics and Bias in AI | Near Term*

Ethics looks at various outcome states/cases and weighing the risks/benefits according to societal impact. AI use in healthcare is no different.



Best Case

- **Excellent data quality** could create extreme accuracy of medical AI algorithms
- **Bias could be eliminated** with precise AI clinical predictions, minimizing medical errors and reducing health disparities
- Populations of **patients trust in healthcare**, embracing essential, routine care that proactively identifies diseases
- **Clinicians fully embrace AI** in their practice, increasing engagement, efficiency, and access



Worst Case

- **Poor data quality** could directly affect the accuracy of medical AI algorithms
- **Algorithmic bias** could affect AI clinical predictions, causing medical errors and exacerbating health disparities
- Populations of **patients could lose trust** in healthcare, avoiding essential care
- **Clinicians lose trust in AI** and avoid it in the future, stifling access



Most Likely

- **Better data quality** increases the accuracy of medical AI algorithms but is questionable at times, **requiring human-in-the-loop workflows**
- **Biases are reduced**, helping reducing health disparities but **requiring retraining**
- Populations of **patients appreciate convenience** created by AI but still **would rather talk directly with their physician during crucial conversations**
- **Clinicians adopt some AI** in their practice, reducing burnout but still **struggle with efficiency and optimizing access**

Examples of Risks Associated with AI

TECH | FAMILY & TECH: JULIE JARGON

A Chatbot Was Designed to Help Prevent Eating Disorders. Then It Gave Dieting Tips.

The National Eating Disorders Association shut down the bot after it recommended cutting calories

By Julie Jargon [Follow](#)
June 1, 2023 9:00 am ET

[Share](#) [AA](#) [Resize](#) [63](#) [Listen \(5 min\)](#)

A chatbot designed to aid people seeking help for eating disorders and body issues [has been taken offline](#) after it provided some users with diet advice.

The bot, named Tessa, operated on the website for the National Eating Disorders Association, and was meant to provide help for website users determined to be at risk for developing an eating disorder. The bot became an online sensation in recent days after social-media posts surfaced showing Tessa giving weight-loss advice. NEDA took it down Tuesday, and leaders say they are investigating what

Over Memorial Day weekend, 25,000 messages were exchanged with Tessa, a 600% increase in volume, but had 25 messages containing unhealthy messages. Tessa was taken offline shortly thereafter.

08.25.2023 @ 10:15 AM ET

Epic's sepsis model misses the mark



Credit: ylem, Wikimedia Commons

Researchers at Winston-Salem, North Carolina-based Atrium Health found that Epic's sepsis warning AI tool is too slow to be useful. The researchers compared the Epic tool to the Sepsis-Related Organ Failure Assessment and other commonly used detection models across five hospitals in 2019 to 2020. The Epic tool was less

Multiple studies have proven Epic's sepsis warning tool to be clinically insufficient, failing to identify 67% of people who had sepsis.
(Epic said the 2021 JAMA study does not reflect the performance of Epic's updated model, which was rolled out last fall)

Analysis | [Open Access](#) | [Published: 15 March 2021](#)

Common pitfalls and recommendations for using machine learning to detect and prognosticate for COVID-19 using chest radiographs and CT scans

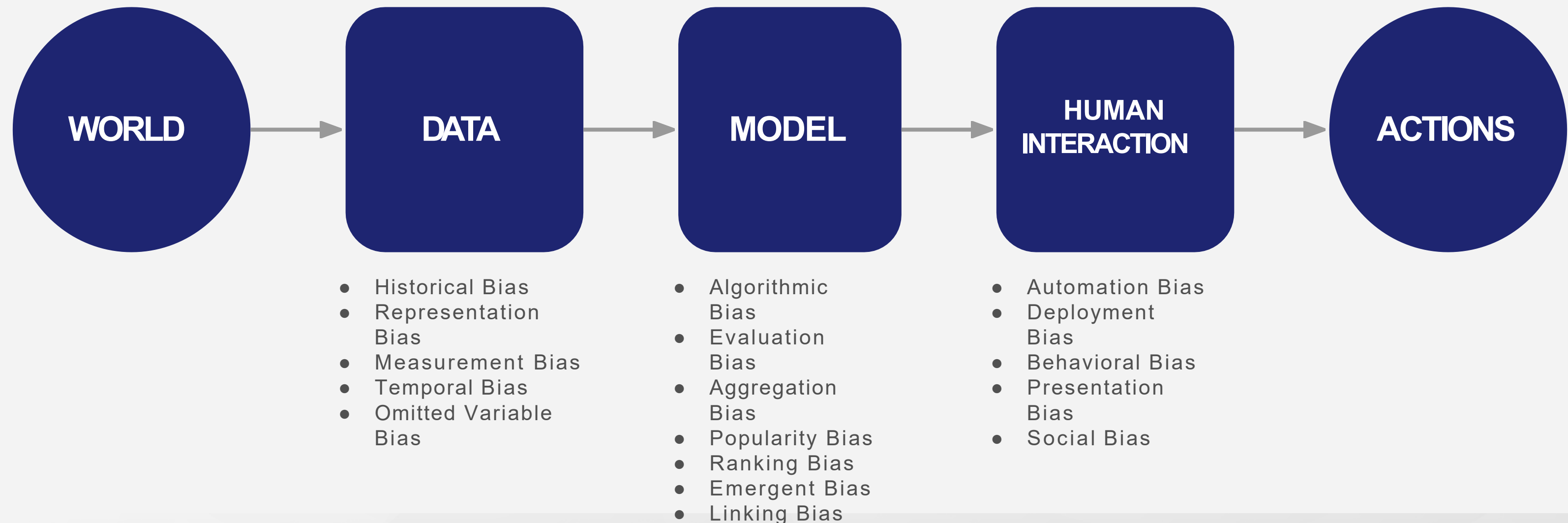
Abstract

Machine learning methods offer great promise for fast and accurate detection and prognostication of coronavirus disease 2019 (COVID-19) from standard-of-care chest radiographs (CXR) and chest computed tomography (CT) images. Many articles have been published in 2020 describing new machine learning-based models for both of these tasks, but it is unclear which are of potential clinical utility. In this systematic review, we consider all published papers and preprints, for the period from 1 January 2020 to 3 October 2020, which describe new machine learning models for the diagnosis or prognosis of COVID-19 from CXR

A 2021 review found that none of the models for COVID-19 detection are of potential clinical use due to methodological flaws and/or underlying biases.

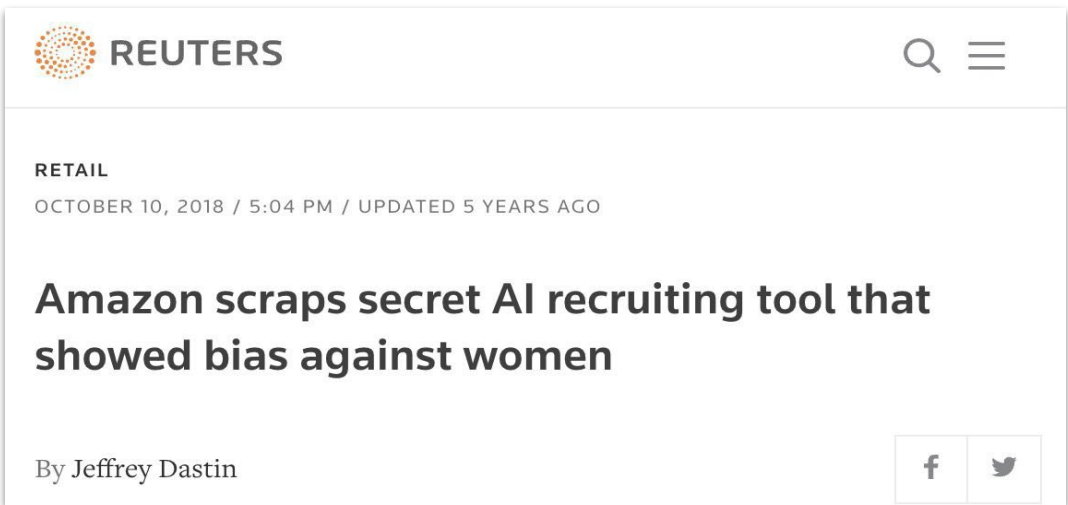
How Bias 'Gets Into' AI

Bias comes from the world, finds its way into AI through data, modeling and human intervention before being acted upon



Real World Examples of Bias Caused by AI

DATA



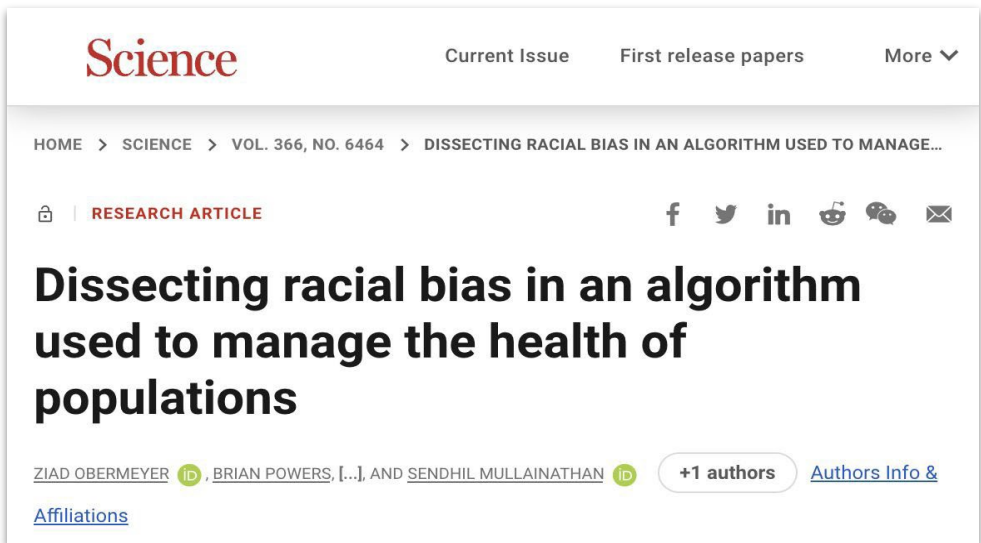
Amazon started an AI project in 2014 to try to **automate the recruiting process** by reviewing applicants' resumes and rating applicants.

By 2015, they realized that the **algorithm was not rating candidates fairly and showed bias against women.**

This was **due to Amazon using historical data** to train the model, which contained biases against women since males formed 60% of Amazon's employees, teaching the algorithm that male candidates were preferable. As a result of the findings, Amazon terminated the project.

Source: [Reuters](#), [Science](#), [The Wall Street Journal](#)

MODEL



In 2019, an algorithm was designed to **predict which patients would likely need extra medical care** and was used on more than 200 million U.S. citizens.

However, **results were found to be faulty, favoring white patients over black patients.**

This was **due to developers using only one variable that was highly correlated to income and race rather than a more representative set of variables.** As a result of the findings, the algorithm was updated, reducing bias by 84%.

HUMAN



In a survey of 1,042 registered nurses in June 2023, **24% of respondents said they had been prompted by a clinical algorithm to make choices they believed “were not in the best interest of patients** based on their clinical judgment and scope of practice” about issues such as patient care and staffing.” Of those, 17% said they were permitted to override the decision, while 31% weren't allowed and 34% said they needed doctor or supervisor's permission.

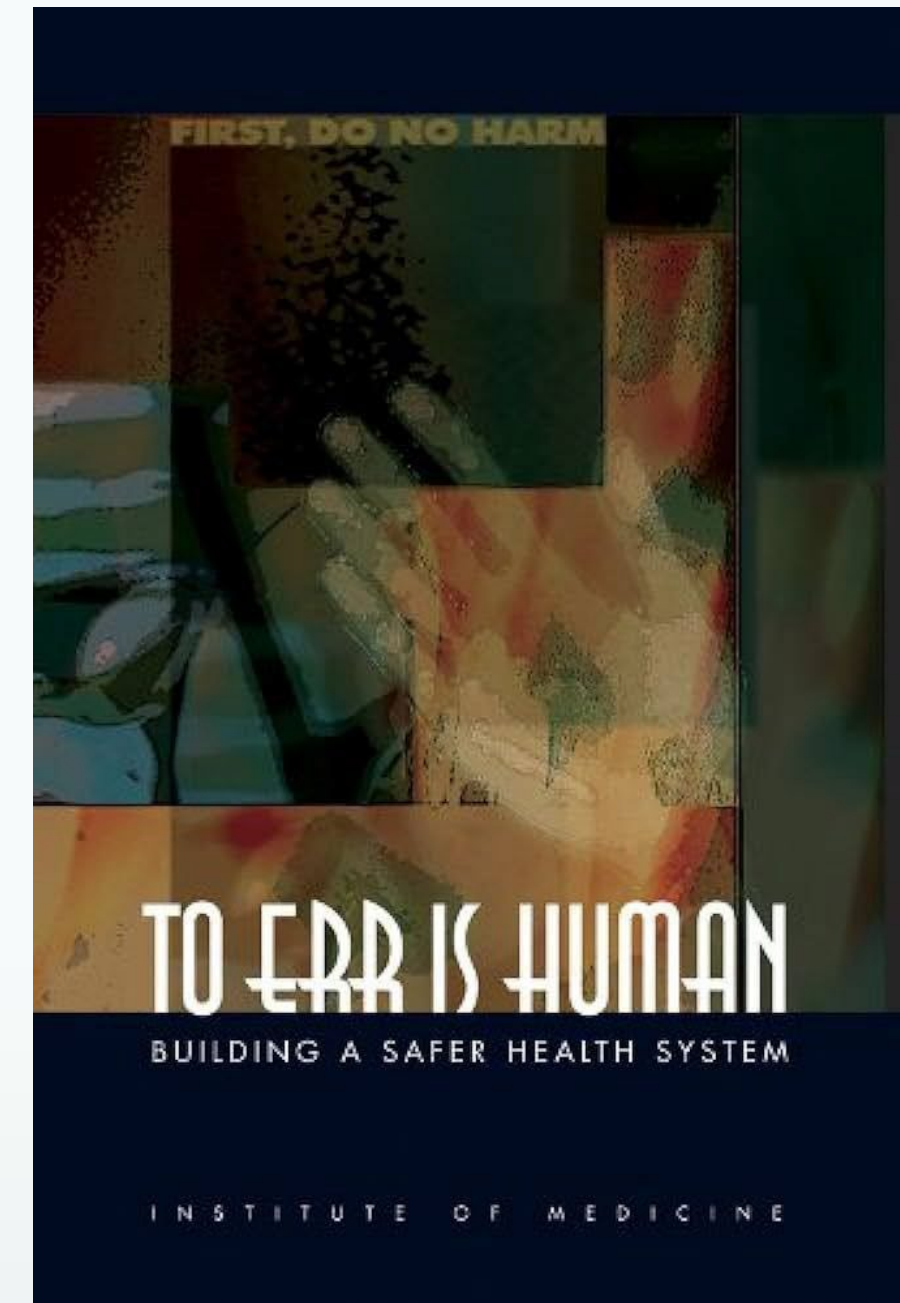
What is the balance between clinical judgement and the risk of human reviewer bias?

Healthcare Quality & Medical Errors

AI holds the potential to improve the quality of care and reduce medical errors

- With **thousands of medical errors leading to preventable deaths each year**, health systems have made significant progress by implementing:
 - Standardization of processes & checklists
 - Surveillance of hospital-acquired infections
 - Improved hand hygiene
- Still, much of the remaining variation causing medical errors is believed to result from **process inconsistencies, communication breakdowns and inadequate information flow**
- Artificial Intelligence can play a key role in reducing medical errors by **supporting better decision making, standardizing care systems, reducing bias and improving staff efficiency**

Ethically, if humans can err, should AI models be allowed to within a range of acceptability?



Published in 1999, To Err Is Human asserts that, while medical errors harm patients, the problem is not bad people in healthcare - it is that good people are working in bad systems that need to be made safer.



BON SECOURS MERCY HEALTH

Top Ethical Challenges Related to Data Collection and Sharing

Health systems leveraging AI models must prioritize ethical standards around use of sensitive patient information and realize the implications of any breaches



Privacy and Security

- Unauthorized access or data breaches can lead to serious harm, and **health systems must take measures to protect patient information**



Informed Consent from Patients

- **If deemed appropriate, patients should be informed** about how AI is being used in their care, with non-AI based alternatives if they do not consent



Data Ownership and Control

- **Patients, providers, and AI developers may have varying interests and rights** so transparency around data access this is critical



Data Minimization

- **Collecting only the data necessary** for a specific healthcare AI application is crucial; the principle of data minimization ensures that **excessive and irrelevant data is not collected or shared**

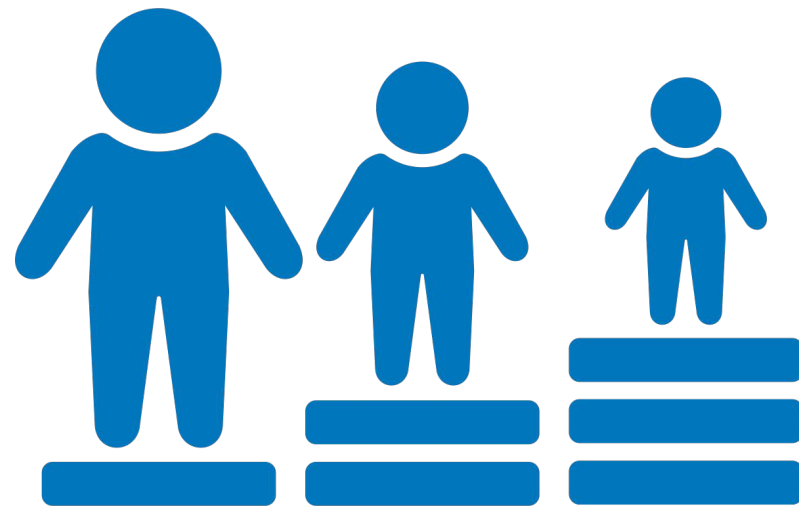


Data Retention and De-Identification

- **Retaining data longer than necessary** or **failing to effectively de-identify it** can compromise patient privacy

AI's Potential Positive Impact on Health Equity and Population Health

By ensuring health disparities are continuously addressed during deployment, AI technology can have a transformational impact and drive health equity



Early Disease Detection

- By identifying health issues at an earlier stage through AI models, providers can offer timely interventions and treatments, reducing health disparities



Diagnostic Support

- Assisting providers in making more accurate and rapid diagnoses, particularly in cases where access to expert medical care is limited, through AI-powered diagnostic tools



Predictive Analytics

- Analysis of population health data to predict disease outbreaks, track public health trends, and allocate resources more effectively in response to health crises, benefiting entire communities



Health Disparities Research

- Analysis of large datasets to identify disparities in health outcomes among different populations, which is valuable information for researchers and policymakers to address health equity issues

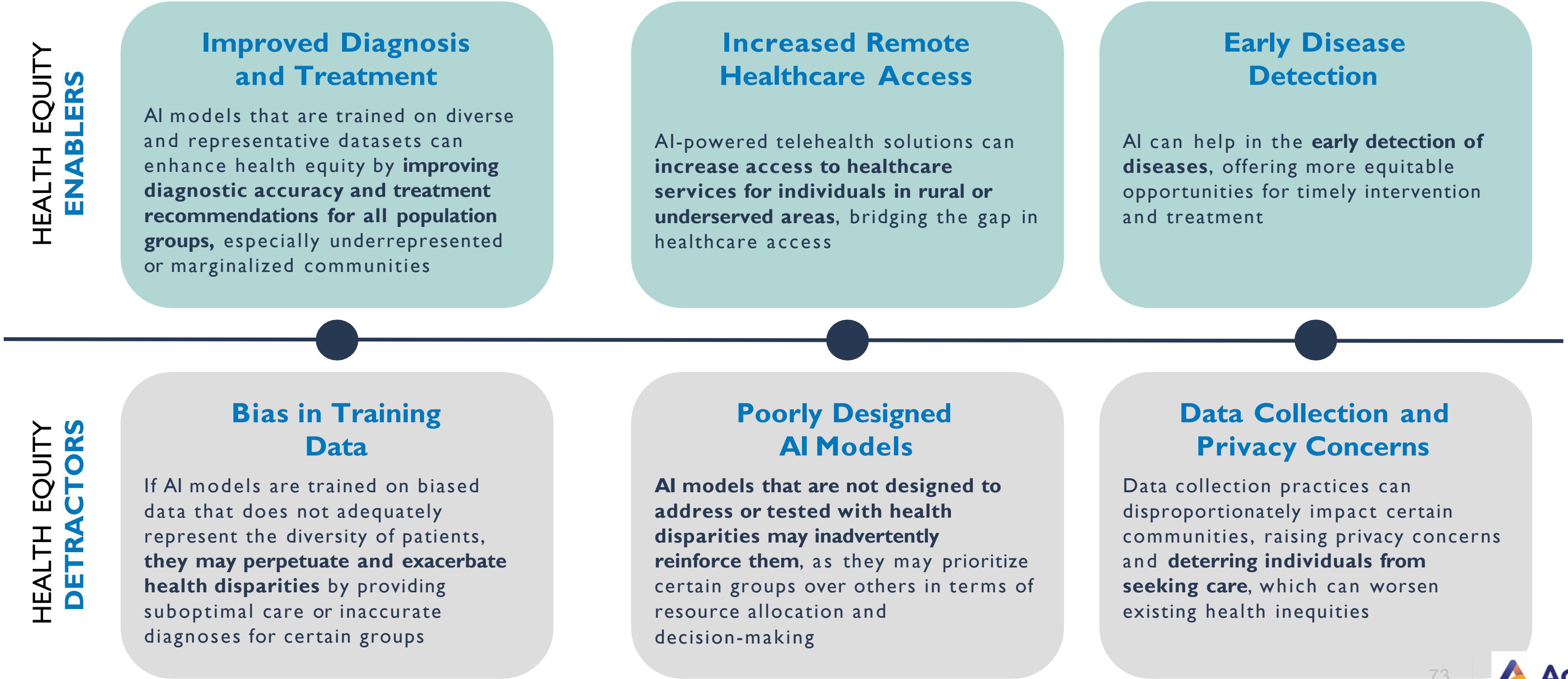


Preventive Care

- Identification of individuals at higher risk for certain conditions and provide personalized preventive care recommendations, potentially reducing the burden of diseases and improving population health.

Enabling vs Detracting Health Equity with AI

AI can lead to unintended consequences, but has the potential to bring greater accuracy to care delivery and improve patient outcomes



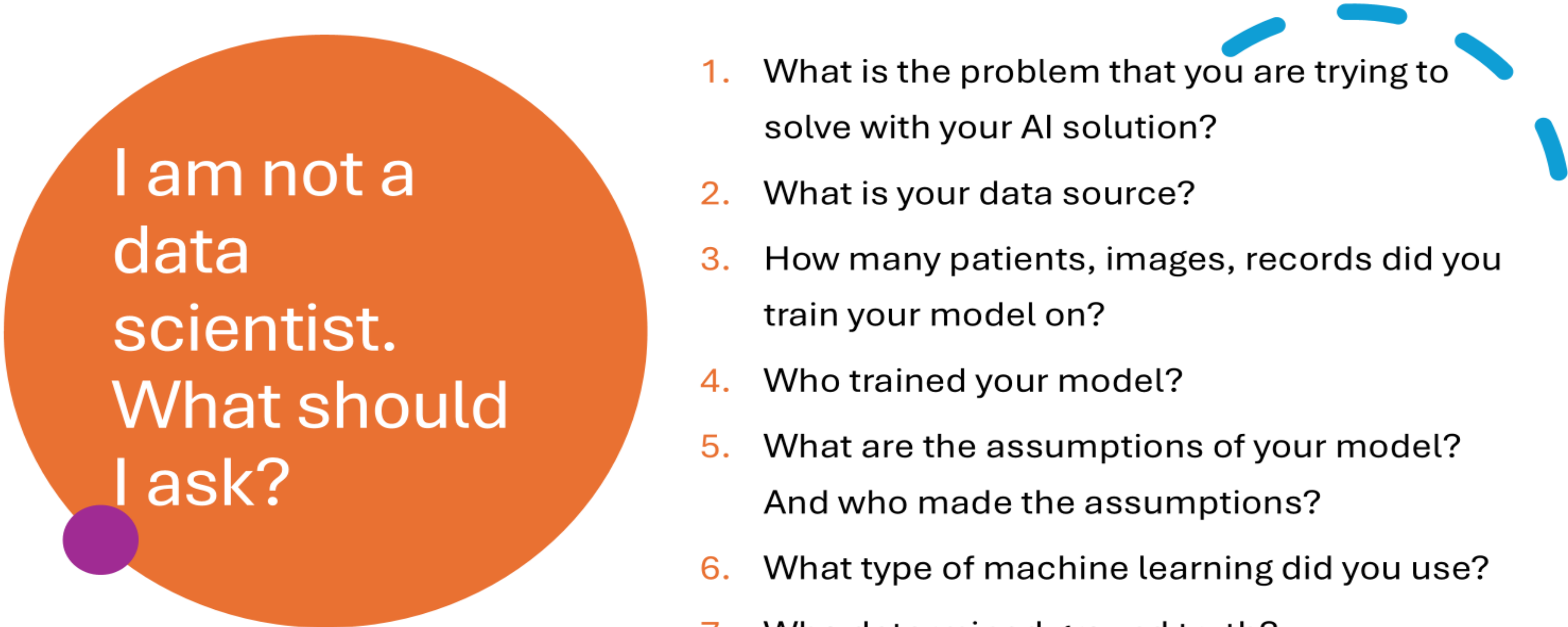
Digital Transformation Areas Where Health Systems Have Invested Money:

a survey of 200 leaders from across the globe (including about 60% in the U.S.)

88% of healthcare leaders surveyed by McKinsey said artificial intelligence held the biggest potential of any technology, but fewer than half had invested in it.

Health systems' top 12 digital investment priorities	
Priorities	
1. Virtual health to drive patient experience and access: 76%	2. Revenue cycle management and back-office automation: 70%
3. Digital front door: 62%	4. Acute care workflow and throughput: 58%
5. Ambulatory care management: 55%	6. Remote patient monitoring: 54%
7. Contracting or value-based care: 51%	8. Virtual health to address labor shortages: 48%
9. Advanced analytics, AI, machine learning, generative AI: 45%	10. Cross-site capacity management: 45%
11. Robotics or physical automation: 40%	12. "Hospital at home": 36%





I am not a
data
scientist.
What should
I ask?

1. What is the problem that you are trying to solve with your AI solution?
2. What is your data source?
3. How many patients, images, records did you train your model on?
4. Who trained your model?
5. What are the assumptions of your model? And who made the assumptions?
6. What type of machine learning did you use?
7. Who determined ground truth?
8. What accuracy did your model achieve?

Credit: Deborah DiSanzo, MBA - HSPH

As a practicing physician, what is my responsibility to my patients when using an AI tool?



- Introduction to the patient:
- *I am using a digital assistant that takes notes for me today; it will help me put together the note that goes into your health record after your visit with me today.*
- *Is that OK with you?*
- *I am turning on the digital assistant now.*
- *Insert smart (dot) phrase into the record.*

“ I personally would not want to have my healthcare, in some specialties, without AI because I firmly believe I will get a better outcome”

-Gianrico Farrugia, MD, president and CEO of Mayo Clinic, speaking at the World Economic Forum in Davos, Switzerland
1/22/2025

Thank you!

Have a great day!

Appendix

Resources:

- [No big efficiency gains seen with clinical documentation AI](#)
- [Nuance and Epic Expand Ambient Documentation Integration Across the Clinical Experience with DAX Express for Epic](#)
- [AI scribe saves doctors an hour at the keyboard every day](#)
- [Virtual Scribes and Physician Time Spent on Electronic Health Records](#)
- [The Utility and Implications of Ambient Scribes in Primary Care](#)

DAX Copilot for Epic document links

Content link	Description
DAX Copilot for Epic quick start guide	This guide covers how to open DAX Copilot in Haiku or Canto to record an encounter, then review or edit the AI generated content in the DAX Copilot or Notes activity in Epic before finalizing the note.
DAX Copilot for Epic Emergency Department quick start guide	This guide covers how to open DAX Copilot in Haiku or Canto to record an encounter in the ED, then review or edit the AI generated content in the DAX Copilot or Notes activity in Epic before finalizing the note.
DAX Copilot for Epic best practices	This quick reference guide offers best practices for better AI output with DAX Copilot.
DAX Copilot for Epic FAQs	This document covers FAQs about DAX Copilot, including workflow options, summary editing, security, compliance, and more.
Capture Spanish dialogue with DAX Copilot for Epic	Learn how to record any portion of an encounter using DAX Copilot for Epic where both the clinician and patient(s) are speaking Spanish.
DAX Copilot for Epic in-app training guide	This guide contains examples of all in-app training that is displayed to new users.
DAX Copilot for Epic handouts	“Leave-behind” flyers/handouts for clinicians using DAX Copilot for Epic.
Customizable Templates Intro Video	Customizable Templates Intro video (applies to both DMO and Epic)
ED Medical Decision Making Intro Video	ED-MDM Intro video (applies to both DMO and Epic)

DAX Copilot for Epic video links

Content Links	Description
What is DAX Copilot?	A brief overview of DAX Copilot, and how it can improve your efficiency.
Best practices	Learn tips and techniques when recording encounters with DAX Copilot.
Frequently asked questions	Clinicians answer some common questions about DAX Copilot.
Where to get help	See how and where to get support and assistance with DAX Copilot.
How to create a SmartPhrase with DAX Copilot SmartSections	Learn how to add DAX Copilot SmartSections to an Epic SmartPhrase to enable DAX Copilot AI-generated summaries to appear within a note.
How to record an encounter in Haiku with DAX Copilot	Learn how to use DAX Copilot to pre-chart and record an encounter, including tips and best practices, resulting in an AI-generated note.
Problem-oriented charting using DAX Copilot	Learn how to quickly reuse the Assessment and Plan summary generated by DAX Copilot to create notes in the Epic Problem List activity.
Problem-oriented charting using DAX Copilot and DAN SmartSections	Learn how to create a SmartPhrase with DAX Copilot and Epic DAN (Diagnosis Aware Note) SmartSections, and how to use them in combination for more efficient problem-oriented charting.
Emergency Department workflow with DAX Copilot for Epic	Epic CMIOs demonstrate how to use DAX Copilot for Epic in the Emergency department.