

HFMA – October 2024



# AI for Healthcare Administration



# Our Vision

To elevate financial clarity in collaboration with payers and providers through cost saving and cutting-edge solutions.



Founded **2018**



**1,000+** Health Systems & Hospitals Served



Reviewed **1.9M** Claims worth \$8B



Overtured 109K claims to Recover **\$1.2B**



**\$3B** in credit balances recovered

## TREND's Partners

**UPMC**  
LIFE CHANGING MEDICINE

**JOHNS HOPKINS**  
UNIVERSITY

**SaintFrancis**  
Health System

**CHRISTUS**  
Health.

**MEMORIAL**  
HERMANN

**MedStar Health**

**Cleveland Clinic**

**NewYork-  
Presbyterian**

**LOMA LINDA UNIVERSITY**  
HEALTH

**Banner Health**

**COXHEALTH**

**USC Arcadia Hospital**  
Keck Medicine of USC

# Quick AI Intro



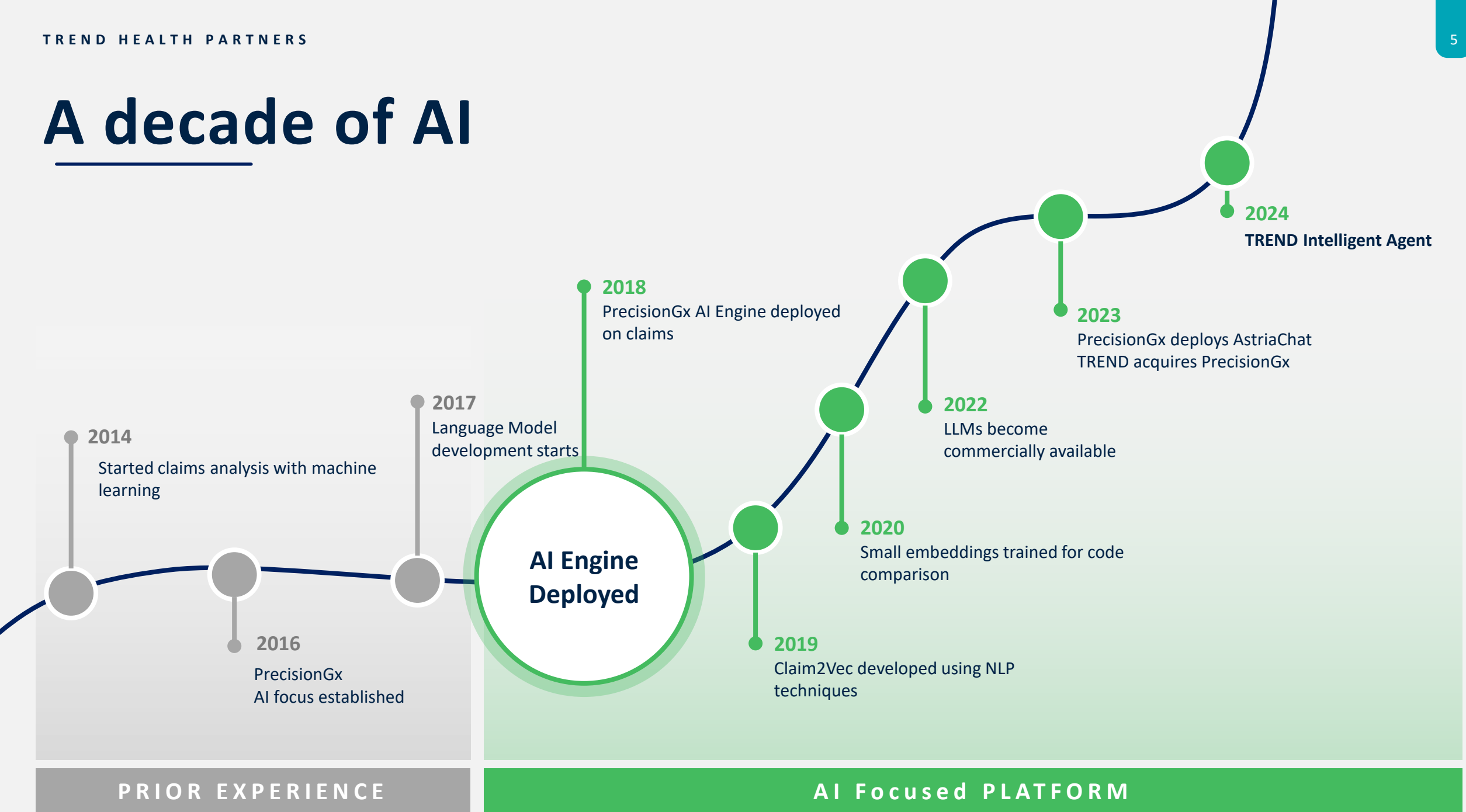
# Agenda

Who are we?

Why AI now?

What is possible?

# A decade of AI



# A brief history of AI in Healthcare

## Prior to 2012 Limited effectiveness

- Rule based medical decision support
- Statistical models for patient outcomes and disease diagnosis
- Genomic data analysis (limited)

## 2012 AlexNet Revolution

- Discovered the effectiveness of scaling neural networks
- Created significant opportunities in diagnostic radiology

## 2013 IBM Watson Health - Oncology

- High powered reasoning engine
- General purpose machine learning tool
- Contract with MD Anderson terminated in 2015

## 2014 Image based tools

- (2014) Zebra Medical Vision - Struggled to gain traction
- (2016) DeepMind's AI for Retinal Disease Diagnosis
- Significant improvement in what's possible

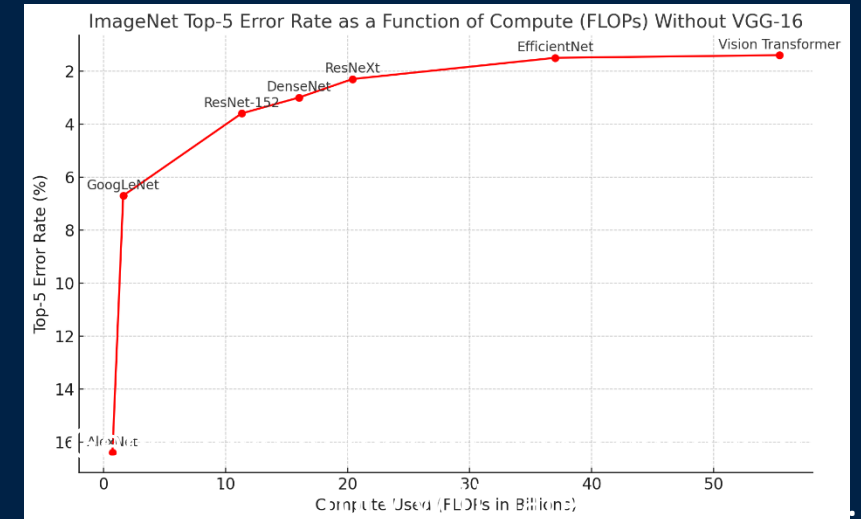
## 2017 Reinforcement learning

- Ability to continuously learn from user feedback
- (2018) AlphaZero – Deep Mind series of models (team won Nobel Prize for protein folding model)

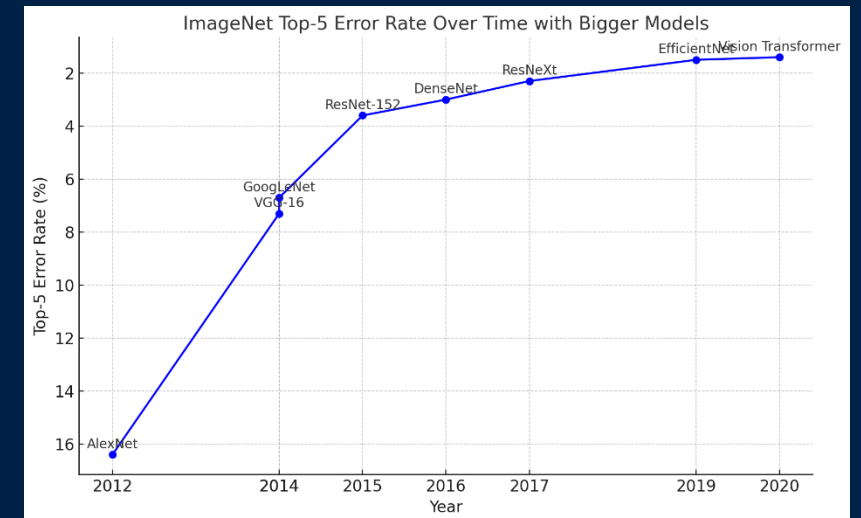
## 2017 Transformers

- Able to handle large text data sets.
- Improved transcription tools

As computation increases...



... performance also increases.



# A brief history of AI in Healthcare

## Prior to 2012 Limited effectiveness

- Rule based medical decision support
- Statistical models for patient outcomes and disease diagnosis
- Genomic data analysis (limited)

## 2012 AlexNet Revolution

- Discovered the effectiveness of scaling neural networks
- Created significant opportunities in diagnostic radiology

## 2013 IBM Watson Health - Oncology

- High powered reasoning engine
- General purpose machine learning tool
- Contract with MD Anderson terminated in 2015

## 2014 Image based tools

- (2014) Zebra Medical Vision - Struggled to gain traction
- (2016) DeepMind's AI for Retinal Disease Diagnosis
- Significant improvement in what's possible

## 2017 Reinforcement learning

- Ability to continuously learn from user feedback
- (2018) AlphaZero – Deep Mind series of models (team won Nobel Prize for protein folding model)

## 2017 Transformers

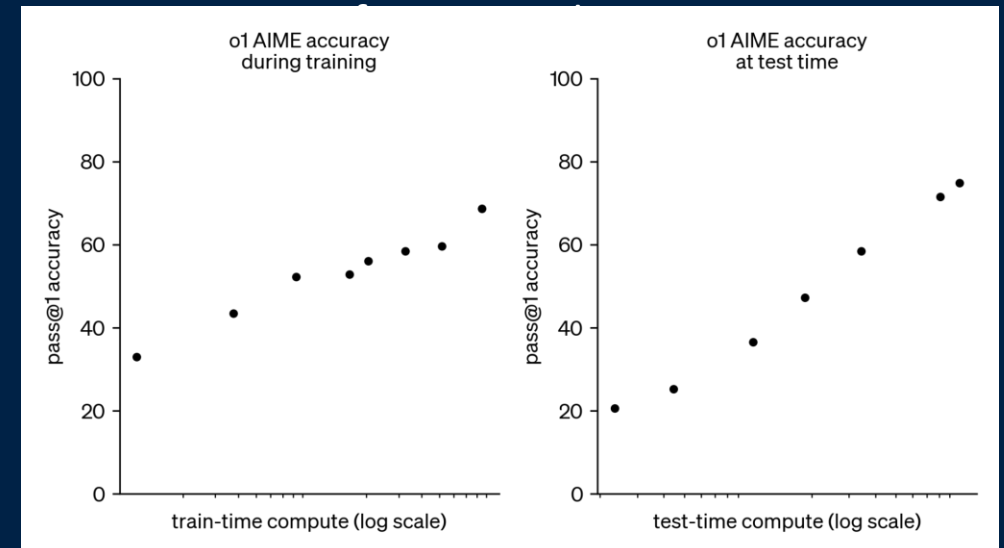
- Able to handle large text data sets.
- Improved transcription tools

## 2022- Today

Transformers with powerful Reinforcement Learning and massive compute.

- Generative AI
  - ChatGPT
  - Claude
  - Gemini / MedPaLM
  - Etc.

Generative AI models now continue the upward trajectory with larger resources...



# AI Challenges

## In Depth Review: IBM Watson Health

### General-Purpose Technology Challenges

- "In essence, Watson was not particularly attractive as a ubiquitous creation, but it needed to be linked to specific uses – and this is where the challenges emerged."

### Closed Commercialization

- "The Watson for health is still closed... there is [not] anything open there for developers to go and access it."

### Data and Integration Issues

- "IBM Watson requires significant data to perform its technical tasks, so extensive data access is required."

### Limited External Engagement

- "The decision of selling Watson Health to hospitals and hospital administrators was top-down, which restricted Watson to be in the hands of a limited number of appointed physicians."

### Complex systems

- "AI is not one application. AI is a series of statistical models... need to be monitored for bias, need to be... constantly tended to like an unruly plant that continues to grow and get crazy."

## Other Healthcare AI Companies with large amounts of invested capital.

Startup Name	Founded	Funding Raised	Focus
Health Catalyst	2008	\$392 million (incl. IPO)	AI-powered healthcare data analytics
Ayasdi	2008	\$106 million	Topological data analysis for healthcare
Olive.ai	2012	\$902 million	AI-driven healthcare automation
Lumiata	2013	>\$45 million	AI for healthcare risk and cost prediction
Zebra Medical Vision	2014	>\$57 million	AI for medical imaging analysis
Machinify	2016	\$13 million	AI for healthcare cost management
Aidoc	2016	\$264 million	AI-based radiology workflow and triage tools



# What does today's Gen AI look like for our space?

Members [New User & User Access](#)

Eligibility and Referrals Prior Authorization Claims and Payments Our network [Resources](#) [Sign In](#)

> Medical & Drug Policies for UnitedHealthcare Commercial Plans

**Commercial Policy Benefits Plans for Providers**

- [Clinical Guidelines](#)
- [Dental Clinical Policies and Coverage Guidelines](#)
- [Medical & Drug Policies for UnitedHealthcare Commercial Plans](#)
- [Reimbursement Policies for UnitedHealthcare Commercial Plans](#)
- [UnitedHealthcare Oxford Clinical and Administrative Policies](#)
- [UnitedHealthcare West Benefit Interpretation Policies](#)
- [UnitedHealthcare West Medical Management Guidelines](#)
- [UnitedHealthcare | UMR Medical & Drug Policies](#)

## UnitedHealthcare Commercial Medical & Drug Policies

The Medical Policies, Medical Benefit Drug Policies, and corresponding update bulletins for UnitedHealthcare Commercial plans are listed below.

For California members, note that the materials provided to you are guidelines used by this plan to authorize, modify, or deny care for persons with similar illnesses or conditions. Specific care and treatment may vary depending on individual need and the benefits covered under your contract.

[Expand All](#) [+](#)

**Medical Policy Update Bulletins** [v](#)

**Medical Records Documentation Used for Reviews**


**Filtered Search**  [Clear Filter](#) **Sort by**

[Ablative Treatment for Spinal Pain – Commercial and Individual Exchange Medical Policy](#) [v](#)

[Feedback](#)


# Why AI Now

## What's changed with Gen AI




**Hyper customizable**

Each interaction with the model is hyper specialized to the context that you provide it.




**Open Access**

There is very little vendor lock-in to one foundational model




**Knowledge is built in**

Massive amount of data is already incorporated into the models training



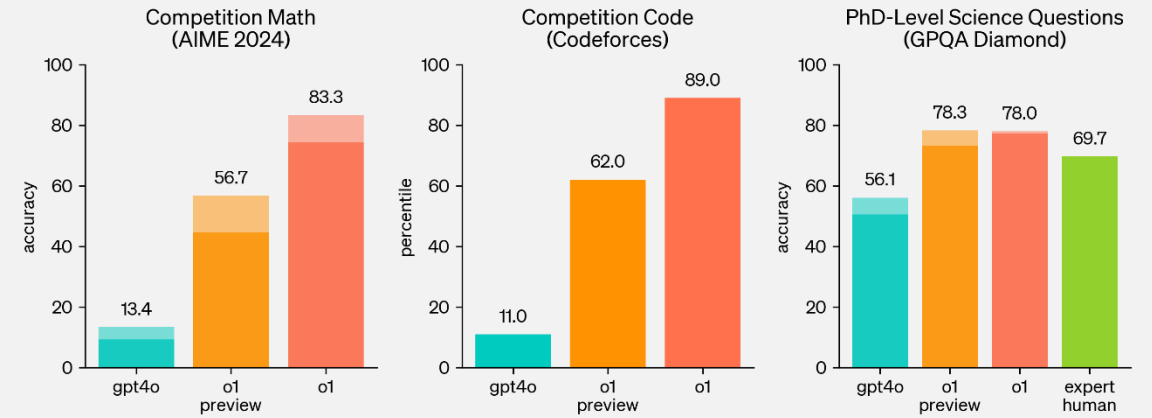
**Easy to get started**

This does not require an executive level sponsorship to get started.



**Simple interface**

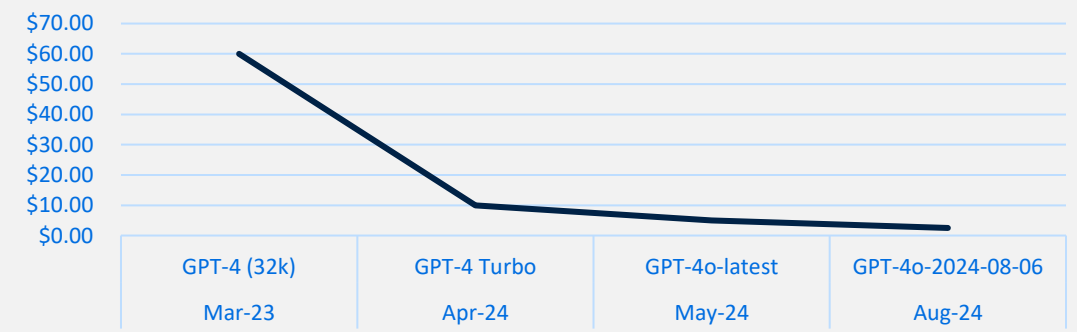
The interface can be as simple as text input into the model, text output.



*Our results show that GPT-4, without any specialized prompt crafting, exceeds the passing score on USMLE (United States Medical Licensing Exam) by over 20 points and outperforms earlier general-purpose models (GPT-3.5)*

- Capabilities of GPT-4 on Medical Challenge Problems, 3/20/2023

### Cost per 1M Input Tokens for gpt-4 series models



# Applications of GenAI Now

## Application Types

- Medical Transcription
  - Ambient note-taking
- Clinical Documentation Automation
  - Note summarization
- Operational Efficiency
  - Provides coding suggestions based on clinical notes
- Documentation Research
  - Policy analysis

## Questions to ask

- What unique data sources do you leverage?
- How do you integrate with our existing systems?
- At what point does the human enter the process?

## Current Capabilities

1. Chat
  1. Q&A
  2. Summarization
  3. Transcription
2. Reasoning
  1. Following step by step procedures
  2. Crafting arguments
  3. Complex calculations

## Future Capabilities

3. Agent
  1. Taking actions in the real-world
  2. Behaving with no supervision
4. Innovate
  1. Making new discoveries from primary literature
  2. Generating new ideas
5. Organization
  3. Running entire processes

# Using AI for Clinical Appeals

Can our AI agent analyze an insurance denial letter, review the medical record, and draft an appeal letter?

## Data

Start with inputs and output content

Confirm denial and chart data, timing/availability, and output letter specifications.

### Inputs

- Denial letter
- Physician notes
- Laboratory reports
- Claim
- Policy guidelines

### Outputs

- Appeal letter – background, rationale
- Provider/Payer-specific formatting

## Capabilities

Make the AI an Agent

Give the AI the same tools and features as the human team. Allow it to take steps, analyze, research and summarize.

### Functions

- Read and re-read denial
- Search guidelines
- Review medical record documents iteratively
- Create library of summaries and specific data points from the case

## Measure

Compare quality to real outputs of human team

Measure performance of the AI system to real outputs of human team, blinded, controlled where possible.

### Compare

- Measure quality of AI generated and human generated content blinded and on same scale
- Run the statistical tests
- Gather and review qualitative feedback
- Confirm if performance is as good, better, or other

## Deploy

Enhance human efforts rather than replace

Deliver AI outputs to a human-in-the-loop to confirm quality, use appropriately.

### Live

- Deliver AI generated letters to clinical reviewers and analysts to review.
- Use all or components of AI content to enhance productivity
- Continuously track performance, quality
- Measure impact on overall productivity

# Appeal Letters

Letters written by TREND Intelligent Agent (AI system) compared to original successful appeal letters.

## Tracking Data

**30 - 90** → **< 15**  
minutes                      minutes

**\$100+** → **< \$5**

Significant efficiency and cost improvements as a productivity enhancement for existing teams.

## Appeal Letters

Original

AI Generated

Mean Score

**4.6**

No Significant Difference

**4.4**



Blinded

**4.2**

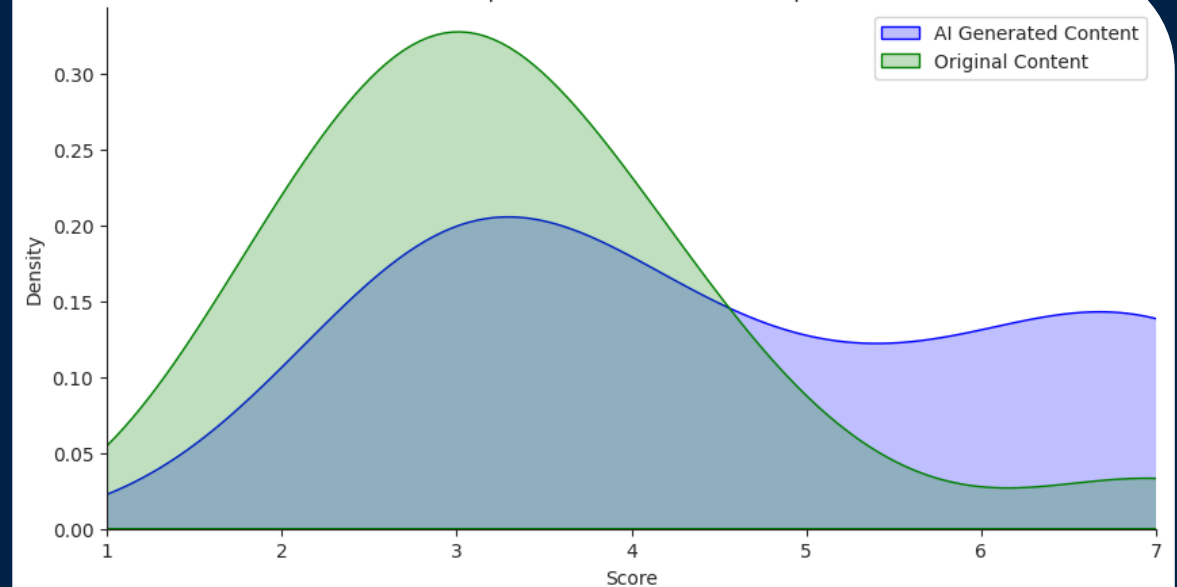
Significant Difference

**4.8**



Intelligent Agent letters confirmed to be equivalent or better to Original Letters on average.

Paired Comparison Distributions - Sample Cases



# Using AI for Policy Compliance

Can our AI agent understand payer reimbursement and medical policies to identify potential claim/payment issues?

## Data

Start with inputs and output content

Provide a policy knowledge base, access to policy sites, and the capability to take in a description or search from a user.

### Inputs

- Policy/Concept description
- Database schema and connection information

### Outputs

- Description of logic and reference information
- Algorithm to identify compliance
- Identified claims

## Capabilities

Make the AI an Agent

Give the AI the same tools and features as the human team in developing algorithms. Allow it to test logic, research reference information, review results.

### Functions

- Review and research policy.
- Write and test algorithms.
- Review and deliver structured results.

## Measure

Compare quality to real outputs of human team

Measure performance of the AI system to real outputs of human team, blinded, controlled where possible.

### Compare

- Measure quality of AI generated analysis against findings of human generated algorithms
- Test matching level
- Gather and review qualitative feedback from SME analysts

## Deploy

Enhance human efforts rather than replace

Deliver AI outputs to a human-in-the-loop to confirm quality, use appropriately.

### Live

- Use as a tool to enhance new datamining and algorithm development.
- Continuously track performance, quality
- Measure impact on overall productivity

# Policy Review

Identifying claims for compliance with TREND Intelligent Agent connecting into datasets.

## Consume policy text or guideline description.

- In this case, we pull from a payer website or policy already added to TREND IA knowledge base.

## Analyzes policy, gathers reference information, coding, other filters or triggers.


- Taps knowledge sources to write and test different permutations of logic and can score claims for likelihood.

## Identifies claims in or out of compliance

- Data mines large claim dataset for potentially non-compliant claims/payments.
- Or can review individual claim

Company
⚙️

Payer B
▼



**Concept Description**  
Describe or upload policy.

Cardiovascular disease risk policy | 1

```

### Description:
The resulting query identifies claims that violate the policy by targeting services considered unproven or non-covered as per member-specific benefit plans or those incorrectly paid. It generates a report of such claims with necessary details for further review.

### Logic Steps:
1. **Identify Unproven Services:**
   - Select claims with specific HCPCS codes linked to unproven diagnostic procedures.
2. **Determine Non-Covered Services:**
   - Cross-reference claim data with member benefit plans to ascertain non-coverage for specific HCPCS codes.
3. **Find Paid Unproven Claims:**
   - Identify claims with non-efficacious CPT codes that have been mistakenly paid.
4. **Generate Claims Report:**
   - Compile the findings into a report, listing claim identifiers, patient information, service dates, CPT codes, and payment statuses.

### Reference Information:
- **Unproven Services CPT/HCPCS Codes:** '93922', '01267', '02618', '93701', '06141', '0019H', '0052U', '0308U', '0309U', '0377U', '0415U', '02172', '03695', '03698', '03701', '03704', '04999', '93050', '93799', '93895', '93998'.
    
```

1	oZ7d9tw9	04a50949-b22e-43fc-9te9-bdc4w0ff01e8	z	20o4-28w06t1d:28:00	d453o021-9Z9e-4ec4-9f6d-bdc4w0feae61
2	AX7c9NC9	A4a50949-bd2e-4Xfc-93e9-b1c4T0Nf01e8	P	A024-08X06 15c2NT00	A453a021-909e-4Xc4-976d-b1c4T0Nee6'
3	4G388I4H	04a50949-Bd3e-43fl-93e9-b1c4H0ff01G8	C	2024B8-36 15:18:50	d453a021-B03e-4ec4-976d-b1c4H0feaeG1
4	46NO9tnZ	04a50949-bd2ew43fc-y3N9-b1c00Zff01e8	d	202w-08-06N15tZ8:00	d453a021-909ew4ec4-y7Nd-b1c00Zfeae6
5	4o7uRNA9	K4a50949-bd2e-b3fc-9Xe9-b1c4Z0ff0Ae8	Z	2024-08o0A 1uxa8R00	K453a021-909e-bec4-9X6d-b1c4Z0feaeA61
6	O6D8gbC9	04a509X9-bd2e-43fc-9beP-b1c4USff01e8	A	g024-08-06Db5:P8:U0	d453a0X1-909e-4ec4-9b6P-b1c4USfeae61
7	4w7q9xMm	04a50949-bd20w43fc-93e9-x1c40qMf01e8	Q	2024-0M-06 15ymw...	d453a021-9090w4ec4-976d-x1c40qMeae6
8	rGeK964m	04a50249-bG2e-43fcK93e9-b1c40eff01m8	a	2074e28-06 65:18:00	d453a221-9G9e-4ec4K976d-b1c40efeae61
9	873FNY8i	abacE824-91c8-4YbF-9b8f-i1c400ff01e8	c	20Qy-Of-U6 15:28R00	d453E821-909e-4YcF-976d-i1c400feae61
10	4dOx6w3	abac9124-91c8-05b4-9b8xb1cd0Aff01e8	T	2024R08-0w 15D2o:0w	d453a021-909e-Oec4-976xb1cd0Afeae61
11	f3C56fX	fbac9p24-91c8-4ib4-9b8f-b1c400fX01eC	5	2F24-08-06 a5P28:OS	f453ap21-909e-4ic4-976d-b1c400fXae6C
12	4Bd196Y3	abas9124X91c8-45b4-9b8f-b1c400ff01J8	I	20p4-08i06 16:280C0	d45sa021X909e-4ec4-97Bd-b1c400feaeJ1
13	4reXK6x3	abac9124-91e8-45bF-9b8X7b1c400fK01e8	H	2s24X0W-06915:28:J0	d453a021-90ee-4ecF-976X7b1c400fKae61
14	47FP26o9	abac9124-91c8-N5b2-9b8f-b1T400fD01P8	S	2024Fe8-06 X5:2K:70	d453a021-909e-Nec2-976d-b1T400fDaeP1
15	773ni6OR	khar9124-n1r8-40h4-9b8f-h1rcm0ff01e8	R	202N-08-26 15T2D:0P	k453a021-n09e-40r4-976d-h1rcm0feae61

# What will this mean for us?

Will AI become:

- “... a new assault on revenue”
- “... an arms race”
- “... Battle of the bots”

- Health System and RCM executives

If AI just becomes a new battleground between payer and provider, it probably won't meaningfully impact administrative burden.

## Reduce administrative burden on clinicians

- Automate case/denial analysis, follow up and communication between payers and providers.

## Navigate diverse policies

- Help to eliminate the denial or conflict in the first place by automating policy analysis and application.

## Use automation and broader knowledge base to *predict* issues

- Use automated analysis and agentic behaviors to create a broader knowledge based on new or problematic payer policies, denial areas that continue to strain teams with complexity.



# Our Vision

To elevate financial clarity in collaboration with payers and providers through cost saving and cutting-edge solutions.



Founded **2018**



**1,000+** Health Systems & Hospitals Served



Reviewed **1.9M** Claims worth \$8B



Overtured 109K claims to Recover **\$1.2B**



**\$3B** in credit balances recovered

## TREND's Partners

**UPMC**  
LIFE CHANGING MEDICINE

**JOHNS HOPKINS**  
UNIVERSITY

**SaintFrancis**  
Health System

**CHRISTUS**  
Health.

**MEMORIAL**  
HERMANN

**MedStar Health**

**Cleveland Clinic**

**NewYork-  
Presbyterian**

**LOMA LINDA UNIVERSITY**  
HEALTH

**Banner Health**

**COXHEALTH**

**USC Arcadia Hospital**  
Keck Medicine of USC