The AI Advantage: Reshaping Healthcare Practices for a New Era

Speakers : Cayden Jacobsen, Paige Roberts, Richa Puranik

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MPFT



Prosper Beyond

EDUCATE healthcare administrators about the concepts, possibilities, and concepts, realities of Al.



Prosper Beyond





ADDRESS common concerns and misconceptions about AI.



Prosper Belond



Prosper Beyond

EDUCATE healthcare administrators about the concepts, possibilities, and realities of Al.



ILLUSTRATE specific uses where AI can revolutionize healthcare.



ADDRESS common concerns and misconceptions about AI.



PROVIDE practical guidance on how healthcare practices can start integrating Al into their systems.



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01

Introduction to AI

- > Concepts
- Impact on Healthcare
- Safety Concerns



01

Introduction to AI

Concepts

Impact on Healthcare

Safety Concerns

02

Administrative

Productivity

TimeManagement

Marketing / Social Media



Introduction to AI

Concepts

01

Impact on Healthcare

Safety Concerns

Administrative

02

Productivity

TimeManagement

 Marketing / Social Media

03

Clinical

Unburdening Physicians

Radiology

Scribes



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04

Revenue Cycle

➤ Excel

Data Analysis

Revenue Cycle

02

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Productivity

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- าร
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Clinical

03

Unburdening
 Physicians

- Radiology
- Scribes

04

Revenue Cycle

- ➤ Excel
- Data Analysis
- Revenue Cycle

05

Preparing your Practice for AI

- Concepts
- Impact on Healthcare
- Safety Concerns



DISCLAIMER

- ✓ We have NO affiliation with any AI applications mentioned
- We chose to highlight AI applications we felt would be the most impactful
- ✓ AI is a new frontier, with new applications made every day

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Machine Learning

A set of techniques that enables computers to learn from data and improve their performance on a specific task without being explicitly programmed for it.

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Natural Language Processing

Enables computers to understand, interpret, and generate human language data.

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Problem Solve

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Used in industries such as...



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22

Used in industries such as...



Education

Manufacturing

Agriculture

Cyber Security

23

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AI Myths

"AI will steal our jobs"

> Aid, transform and create jobs

Prompters, Educators, Integrators

AI Myths

"ALWAYS makes accurate decisions"

Without enough information CAN make biased decisions

AI Myths

"One-time effort and expensive endeavor"

Implementation requires monitoring and ethical considerations

There exist a variety of inexpensive options

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Tailor therapies to individual patients



Tailor therapies to individual patients

Expedite the drug discovery process



Tailor therapies to individual patients

Expedite the drug discovery process



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Alleviate the burden on healthcare providers

Question

How much do we think AI could save the Healthcare Sector in Spending?



Question

How much do we think AI could save the Healthcare Sector in Spending?

Answer

"...We estimate that wider adoption of AI could lead to savings of 5 to 10 percent in US healthcare spending roughly \$200 billion to \$360 billion annually."

(National Bureau of Economic Research, 2023)



AI Applications : Administrative

PT	ChatGPT	AutoGPT	
\$	→ Unleashed AI's potential Globally	 Unmatched Capability 	
and and	 Capable, but Limited 	Experimental OpenALAPLKey	
	→ GPT-4, Plugins → Code Interpreter	 Incredibly powerful 	
	> Enterprise		

Godmo

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ser Friend







> Quality

34



ChatGPT

- Unleashed AI's potential Globally
- Capable, butLimited
- > GPT-4, Plugins
- > Code Interpreter
 - Enterprise

AutoGPT

- Unmatched
 Capability
- > Experimental
- > OpenAI API Key
- Incredibly powerful

Godmo

- Browser-acc AutoGPT
- Some limitati
- User Friendly



AutoGPT

- > Unmatched Capability
- > Experimental
- > OpenAI API Key
- Incredibly powerful

Godmode

- > Browser-accessible
 AutoGPT
- > Some limitations
- User Friendly

How to v GPT

- > Advisor
- > Personal Ass
- > AutoGPT
 - I. Intern
 - II. Researcher
 - III. Analyst


Godmode

- Browser-accessible
 AutoGPT
- Some limitations
- User Friendly

How to view GPT

- > Advisor
- > Personal Assistant
- > AutoGPT
 - I. Intern
 - II. Researcher
 - III. Analyst



How to view GPT

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Microsoft Windows [Version 10.0.19045.3086] (c) Microsoft Corporation. All rights reserved.

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k



AutoGPT Findings

The basic requirements to become an advanced medical home in North Carolina Medicaid include being a prepaid health plan (PHP) that delegates certain care management functions to advanced medical homes (AMHs) at the local level. AMHs can work with their affiliated healthcare system or make arrangements with a Clinically Integrated Network, a Care Management vendor, or other population health entity to provide these care management functions. The North Carolina Department of Health and Human Services (DHHS) has developed standards for AMHs and is responsible for initially certifying that practices meet AMH criteria.





Send a message

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Time Saving Applications

AIs for Zoom Meetings

FireFlies





Time Saving Applications

FireFlies

Scribe for Zoom Meetings



Automate Workflows from Meetings

HIPAA Compliant

Free & Paid Versions

MidJourney

- Image Generation
- Customizable
- ➤ Quality
- > Affordable
- Public Display

_____ MS Designer

- Social Media + Image Generation
- User Friendly
- Integrated in PowerPoint
- Variations

DALL-E

- Image Generation
- ➢ From OpenAI
- ➢ Token Based
- Capable, but not the best



MS Designer

- Social Media + Image Generation
- ➢ User Friendly
- Integrated in PowerPoint
- Variations

Pictory

- Video Editing & Clip Generation
- Free to use
- Comprehensive
- Good intro to AI in Social Media



Pictory Video Editing & **Clip Generation** \triangleright Free to use Comprehensive \geq Good intro to AI in \triangleright Social Media

Pictory Pictory Video Editing & Clip Generation Free to use

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Designer PREVIEW

 \times

Describe the design you'd like to create ③



Try a prompt

Get inspired! Select an example below to generate similar designs.



INVITE

AI Applications: Clinical

Physician Importance

What is the predicted shortage of Physicians in the US by 2032?

A. 25,000

B. 50,000

C. 100,000

D. 150,000



Unburdening Physicians

🛅 More accurate Diagnosis

Assistance with X-Rays

Scheduling, Patient History

AI and Radiology (%)

An Emerging Field X-Rays, CT scans, MRIs FlyWheel (for developers) NVIDIA AI Medical Imaging Designed to help physicians, not do their job Discovery and learning

Physician Importance

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Physician Importance

Projected Physician Shortage in US by 2032

Figure 2. Total Projected Physician Shortfall



(Reason Foundation, "Covid-19 Response Shows How America's Physician Shortage Can be Addressed", accessed July 2023)

Physician Importance

Projected Physician Shortages by 2034

Specialty Area	Shortage Range
Primary Care (e.g. family medicine, general pediatrics, geriatric medicine)	Between 17,800 and 48,000 physicians
Nonprimary care specialties	Between 21,000 and 77,100 physicians
Surgical specialties (e.g. general surgery, obstetrics and gynecology, ortho- pedic surgery)	Between 15,800 and 30,200 physicians
Medical specialties (e.g. cardiology, oncology, infectious diseases, pulmonology)	Between 3,800 and 13,400 physicians
Other specialties (e.g. anesthesiology, neurology, emergency medicine, ad- diction medicine)	Between 10,300 and 35,600 physicians

(AAMC, "AAMC Report Reinforces Mounting Physician Shortage", accessed July 2023)

Al and Physicians



Unburdening Physicians

More Time per Patient

More accurate Diagnosis



Assistance with X-Rays



Scheduling, Patient History

Aland vsicians

AWS Healthscribe

Notetaking



Transcript Segmentation

ΠŶ **Evidence** Mapping

Summarized Clinical Notes

Al and Physicians

AWS Healthscribe

1:58 PM Sat Dec 5	97% B	
PATIENT VISIT TRANSCRIPT	CLINICAL NOTES	
• •	[] Roboto ▼ 14 🕈 BIUS 🖺 Ξ 🗄 🗷 ⇔	
skip small talk		
Patient: Hi doctor!	Chief Complaint: Chest Pain	
Clinician: Hi Jack. How are you!?		
Patient: I have been having this chest pain for a while.	History of Present Illness:	
Clinician: Ah. Sorry to hear that.	The patient presents with symptoms of chest pain that	
Clinician: When did it start?	 started last night and became worse progressively. Pain is mostly located in upper left chest area. Patient denies symptoms of shortness of breath, dizziness, 	
Patient: It started last night and became worse over time.		
Patient: Uh.		
Patient: I am feeling it mostly in the upper left chest area.	Assessment:	
	 Further evaluation required. 	
Clinician: Have you experienced any other symptoms?	Plan:	
Clinician: shortness of breath, dizziness, or nausea?	 Ordered ECG and X-ray to gather additional information 	
Patient: No, I haven't. Just the chest pain is bothering me.	 Instructed patient to avoid strenuous activities until further evaluation is complete 	

Al and Physicians

Google Med-Palm 2

) Medical Question Answering





Developing Features (X-Ray)

Advised Series Mayo Clinic Testing

AI and Physicians

Google Med-Palm 2





AI and Radiology



NVIDIA AI Medical Imaging

X-Rays, CT scans, MRIs



Designed to <u>help physicians, not</u> <u>do their job</u>

An Emerging Field

Discovery and learning



Nanox

FDA Cleared for detecting coronary artery calcification (CAC) and vertebral compression fractures

CT scans

Developing algorithm for Fatty Liver disease detection

Bought Zebra Medical Vision in 2021

Designed to <u>help physicians</u>

AI and Radiology



OPINIONS, PERSPECTIVES, AND COMMENTARY Closing the Loop in AI, EMR, and Provider Partnerships: The Key to Improved Population Health Management?

Alexis Kurek*[®], David Langholz and Aiesha Ahmed

BHSH Spectrum Health West Michigan, Grand Rapids, USA

Corresponding Author: Alexis Kurek, Email: alexis.kurek@spectrumhealth.org

Keywords: artificial intelligence, coronary artery disease, osteoporosis, population health

"...the ability of AI to effortlessly identify disease and integrate with the electronic medical record (EMR) to provide the PCP with appropriate recommendations or suggested next steps <u>could be seen as a physician burnout</u> <u>mitigation tactic</u>" (Kurek et al., 2022)

AI Applications: Revenue Cycle

Healthcare Revenue Cycle Issues to Address

GPT in Revenue Cycle

Use Examples

- Claim Denial Management
- Fraud Detection
- Revenue Forecasting and Optimization

Revenue Cycle Af Applications

Experian Health 🖬

➤Claim Management

⊁Healthcare Collections Assistance

Revenue Optimization





Real Time News

Florida Blue

 First U.S. payer to <u>automate prior</u> <u>authorization</u> through AI powered clinical reviews

✓ AI platform from company called Olive

AI in Excel

N Automated data entry

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Claim Status Checks

Billing and Coding Errors

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Claim Status Checks

Billing and Coding Errors

✓ Out-of-pocket Cost Estimates

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GPT in Revenue Cycle

Use Examples

Claim Denial Management

Fraud Detection

Revenue Forecasting and Optimization

GPT in Revenue Cycle

Creation of Patient Education Materials

 Generates information about billing and insurance processes

 Creates content for patient education materials such as brochures and web content, explaining insurance processes, billing procedures, and financial assistance options.

GPT in Revenue Cycle

Compliance & Policy Summarization

Summarizes updates in healthcare regulations and policies

 Can develop training materials for staff making sure that they stay up to date with changing regulations



Experian Health



➤Claim Management

> Healthcare Collections Assistance

➢ Revenue Optimization

Partnerships





NOVANT HEALTH VANDERBILT WHEALTH




Novant Health implements Experian Health's Collections Optimization Manager

- Experienced a 5.8% increase in their revenue per unit compared to the previous year
- Improved recovery rate of 6.5%
- > Average return on investment of 8.5:1







➤ Charge Infusion

➢Patient Assignments

Partnerships





vathenahealth









Claims Management Suite

Prior Authorization Suite

Financial Clearance Suite

Customers





What percentage of preventable denials stem from administrative errors?

A. 53%

B. 12%

C. 86%

D. 100%



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Real Time News

Cigna gets sued

Class action suit filed over AI-powered claims system

A study by ProPublica found that for over 2 months in 2022, Cigna denied more than 300,000 claims, spending an average of 1.2



Automated data entry



Automated data entry

Billing and Coding Optimization



Automated data entry

Billing and Coding Optimization

Fraud detection



ChatGPT Code Interpreter w/ Excel

✤ GPT-3.5 6PT-4	
GPT-4 currently has a cap of 25 messages every 3 hours.	
Cptometry Fee Schedule 9-12-2022.vdsx	
Send a message	
ChatGPT may produce inaccurate information about people, places, or facts. <u>ChatGPT May 24 Version</u>	



AI Prompt Examples for Excel

"Create a macro in Excel that suggests appropriate medical codes based on the services provided during a patient visit"

"Can you assist in automating the data entry of patient demographics from scanned forms into our Excel database"

"Create a pivot table to identify any unusual billing patterns or duplicate claims within the data"



Python in Excel

- > All you need is =PY()
- > Advanced data visualizations
- Deep statistical analysis
- > Easy sharing and collaboration
 - Currently found in the Microsoft 365
 Insiders Program

XE

Python in Excel

Excel

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1	A B	С	D	E	F	G	н		1	K		М	N	0	Р	Q	R	
	Product	Regio	n Discount	Sales	Quantity	Value												
3		s North	Yes	7.78	87	57												
4	Mountain I	Bikes North	Yes	10.64	63	31												
5	Wheels	North	No	2.24	120	31												
6	Lights	Wes1	Yes	5.00	75	16												
7	Mountain I	Bikes West	No	8.00	82	42												
8	Brakes	North	No	3.10	68	24												
9	Road Bikes	South	Yes	6.38	97	37												
10	Helmets	West	Yes	8.00	55	18												
11	Mountain I	likes South	Yes	9.47	77													
12	Helmets	South	No		50	19												
13	Cargo Bike	South	No	3.09	100	24												
14	Pedals	South	No	0.78	145	16												
15	Cargo Bike	North	Nö	4.21		23					1 st							
16	Pedals	West	No	0.30	143	14					10							
17		West	No	4.08	100	21												
18		West	Yes	5.49		39												
19	Locks	South	No		75	14												
20	Brakes	South	Yes	1.80	120	21												
21		West	Yes	2.00	100	13												
22	Helmets	North	Yes	10.00	40	20												
23	Cargo Bike	West	Yes	2.04	110	25												
24	Wheels	West	Yes	2.95	110	18												
25	Pedals	North	No		100	17												
	Wheels	South	Yes	2.28	103													
27		South	Yes			16												
	Locks	North	No	4,00	60	15												
29		North	Yes	7,00	60	27												
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Preparing your Practice for AI

Integration

	Steps for AI	Integration				
	1. Identify uses	6. Train and educate				
-	2. Select algorithm	7. Pilot Projects				
	3. Ensure compatibility	8. Track performance				
	4. Implement security	9. Feedback & increasing scale				
	5. Enter data	10. Regular audits				

Summary

Flaws and Potential Issues



Q & **A**



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Steps for AI Integration

Savings: 2020 OLIVE result:

Over \$100 million in perpetual savings, revenue increases, efficiencies for the industry

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Steps for AI Integration

Cost:

Dependent on practice size and complexity, Consultation available AWS health scribe cost consult example:

Pricing examples

Let's assume that you want to use AWS HealthScribe to process 1,000 consultation audio transcripts per month, and the average call is about 15 minutes each. This equals 15,000 minutes of audio per month. Since AWS HealthScribe is priced at \$0.001667 per second, or \$0.10 per minute, your monthly charges will be as follows.

Calculation of monthly charge:

Total monthly audio minutes analyzed = 15,000 minutes Total cost = Total minutes * price per minute Total cost = 15,000 minutes * \$0.10 per minute Total cost = \$1,500

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HIPAA compliance



Health Insurance Portability & Accountability Act



HIPAA compliance HIPAA



Biased Outcomes X

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Health Insurance Portability & Accountability Act

Biased Outcomes X

Lack of trust by physicians

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Replace laborintensive processes



and intertained and the should be the

Replace laborintensive processes Eliminate human errors in the revenue cycle



Replace laborintensive processes Eliminate human errors in the revenue cycle Facilitate other administrative processes



What industry leaders have to say about the future of healthcare

"AI has the potential to create additional capacity for humans in a high-demand environment — that is value."

Scott Arnold. Executive Vice President and CIO of Tampa (Fla.) General Hospital

What industry leaders have to say about the future of healthcare

"AI will, based on the real-time data, diagnose anomalies and afflictions and provide and continuously adjust treatments."

Tony Ambrozie. Senior Vice President and Chief Digital and Information Officer of Baptist Health South Florida (Coral Gables)

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What industry leaders have to say about the future of healthcare

"Healthcare and medical care will be mainly focused on preventive physical and mental health due to advances in AI."

Anthony Chang, MD. Chief Intelligence and Innovation Officer of Children's Hospital of Orange County (Orange, Calif.)

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Resources



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