

POSSIBLE (RE)DEFINED

Transform Your Healthcare Operations With Technology & AI

Published Date: April 17, 2024

AREA OF FOCUS

Today, We're Covering

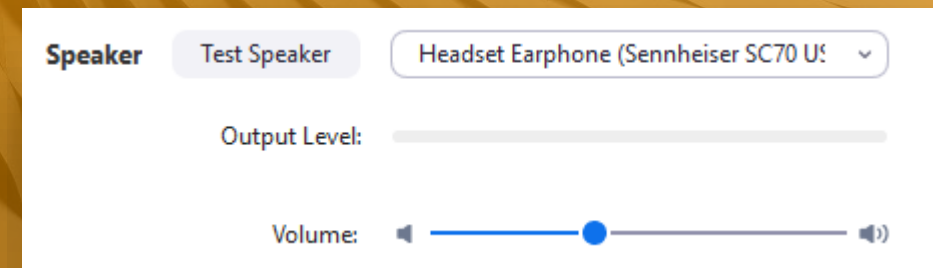
The Art of Possible Value-Based Care and AI Implications

QUICK TIPS

Adjust Audio Speakers

Audio Options

- Click Audio Options - this will open your audio settings
- Click Test Speaker to play a test tone
- If you cannot hear it, select a different speaker from the menu
- Try adjusting the Volume



WELCOME

Today's Presenters



Ron Present

Partner, Healthcare Industry
Armanino



Eric Shuss

Solution Architect
Armanino



Carmel Wynkoop

Partner-in-Charge, Business
Analytics, AI and Automation
Armanino

EXPLORING NEW AREAS

Agenda

- AI: Myth vs. Reality
- Healthcare Trends and Defining the Importance of AI
- Industry Examples: AI Enabled AR, Maintenance and Scheduling
- Tying it All Together: AI and Value-Based Care
- Q & A

Polling Question 1

What do you think AI in
healthcare means?



Myth

**Reduction in personnel;
lost jobs**

Reality

Creativity and personal touch are always needed in healthcare. AI will complement jobs, not eliminate them

Myth

Using AI is expensive and only larger hospitals and health systems can fully engage

Reality

AI is available for everyone. Effective use of AI should provide a positive ROI which outweighs initial costs

Myth

AI chatbots are only fancy search engines

Reality

Search engines focus on matching key words that are sometimes irrelevant to your search. Chatbots use data to generate new integrated information and complete tasks

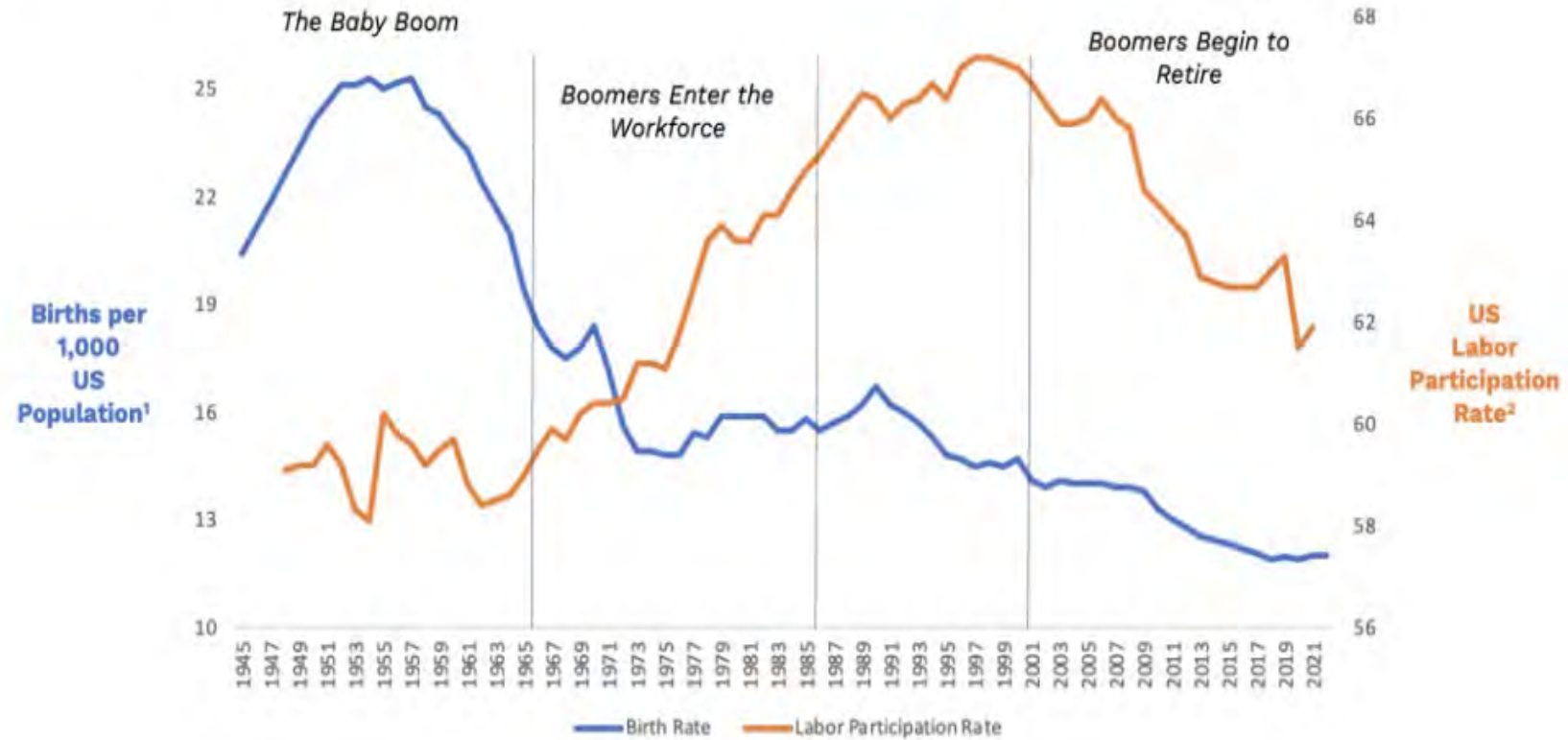
Labor expenses continue to rise, increasing administrative waste along with it



Source: ACHE 2024 Congress on Healthcare Leadership

The Capacity Cliff

Providers will soon have to treat more patients with fewer workers



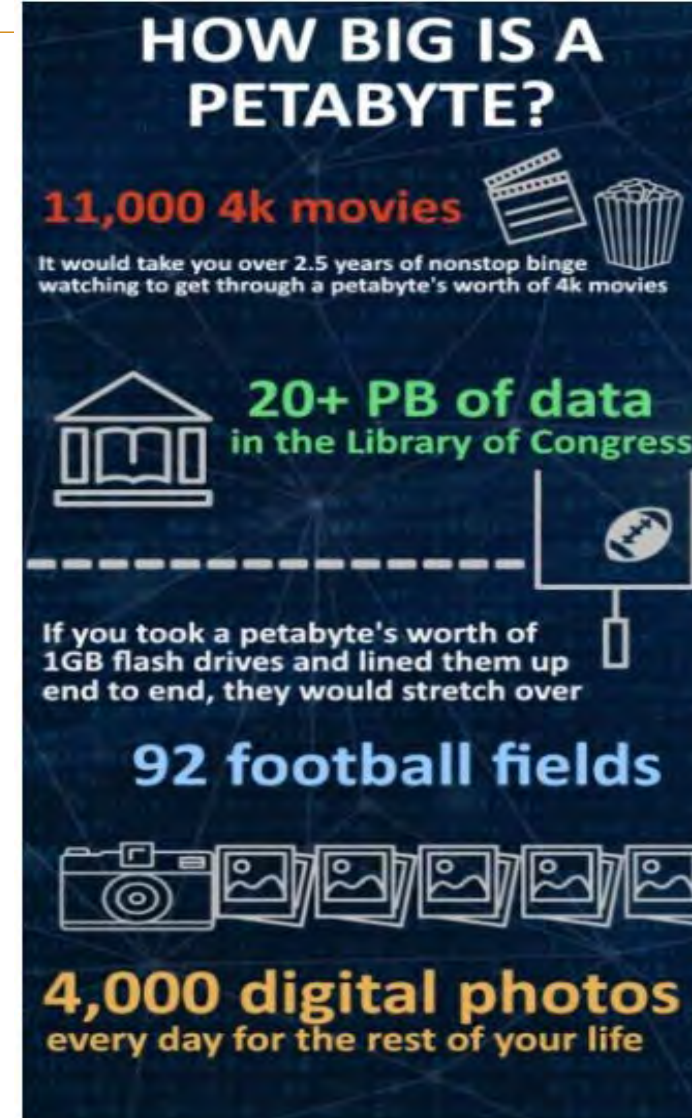
Source: Ache 2024 Congress on Healthcare Leadership

Producing More Data than Ever Before

The average hospital produces roughly **50 petabytes** of data every year.

That's more than **twice** the amount of data housed in the Library of Congress, and it amounts to **137 terabytes** per day.

Source: HealthTech Magazine



Source: Cobalt Iron

What is Artificial Intelligence (AI)?

Intelligent Automation encompasses a set of technologies that create a 'digital workforce' to further optimize business, clinical, and operational objectives



Why is AI Important?

AI lives within a set of intelligent automation tools that provides a win-win strategy for employees and organizations

ENABLE

Relieve transactional pressures by removing tedious, mundane tasks from daily work

ENHANCE

Bring increased efficiency, joy, and fulfillment back to the workplace by augmenting work and productivity

EXPAND

Create occupation transformation where employees seamlessly interact with AI-infused techniques and processes



Source: Ache 2024 Congress on Healthcare Leadership

Why is AI Important to Healthcare?

AI Can Bend the Cost Curve

- Enhances predictive analytics, optimizing resource allocation & reducing unnecessary hospital admissions, leading to cost savings
- AI-driven population health management can identify at-risk patients earlier, enabling preventative interventions that reduce the overall cost of care

AI Can Increase the Ability to Do More with Less

- Extends healthcare services to underserved populations through telemedicine & remote monitoring, increasing access to care without the need for additional physical infrastructure
- Chatbots & virtual assistants offer 24/7 support, addressing patient inquiries and reducing the strain on human staff, allowing healthcare facilities to do more with existing resources

AI Can Increase Productivity

- Assists healthcare professionals in making faster & more informed decisions, improving overall productivity and patient outcomes
- Virtual health assistants enhance patient engagement, scheduling & follow-ups, increasing efficiency in delivering care & managing patient interactions

AI Can Reduce Clinician Burnout thus Improving Patient Care

- Automates administrative tasks such as documentation & scheduling, reducing the clerical burden on clinicians and allowing them to allocate more time to patient care
- Decision support systems assist clinicians in making faster & more accurate diagnoses & treatment decisions, relieving the stress associated with complex decision-making

Healthcare AI Examples

AI Enabled AR, Maintenance and Scheduling



AI-Enabled Accounts Receivable

Problem statement

- Collections fall off as the year progresses
- Leaving millions of dollars uncollected and written off

AI-Enabled solution

- Have AI create and update the AR performance forecast monthly
- Incorporate Machine Learning to find AR patterns and predict collections
- Have AI identify errors in billing or coding to help with collections *and Denials*
- Have AI act as an agent to perform collections

	12/31/2020	11/30/2020	10/31/2020	9/30/2020	8/31/2020	7/31/2020	6/30/2020	5/31/2020	4/30/2020	3/31/2020	2/29/2020	1/31/2020	Dates of service 12/31/2019
proforma													
Indirect Accounts Receivable (Lab Only)	6,573,653	7,303,889	7,413,670	6,678,689	6,192,908	5,756,224	5,483,386	4,936,065	5,374,805	9,086,574	11,450,278	11,029,830	10,851,041
Future expected collection trend													
February 2019													
March 2019													
April 2019													
May 2019													
June 2019													
July 2019													
August 2019													
September 2019													
October 2019													
November 2019													
December 2019													
January 2020													6,094,308
February 2020													2,319,419
March 2020													1,058,455
April 2020													698,796
May 2020													569,705
June 2020													453,659
July 2020													361,722
August 2020						4,215,644	4,127,438	3,325,132	3,794,165	5,837,882	6,798,348	5,517,626	6,094,308
September 2020					4,528,442	1,259,419	1,393,069	1,152,285	2,307,075	3,106,622	3,113,139	2,104,241	2,319,419
October 2020				4,252,459	1,658,237	483,354	813,868	609,080	460,101	393,084	1,082,368	824,643	1,058,455
November 2020			4,741,584	1,558,510	533,989	340,596	236,775	199,633	218,114	195,915	173,812	447,008	569,705
December 2020	-	5,383,445	1,888,262	450,190	345,927	279,824	172,301	155,247	165,300	158,996	124,807	201,263	453,659
January 2021	-	2,195,563	770,101	183,604	141,081	114,122	70,271	63,315	67,415	64,844	50,901	85,765	361,722
February 2021	-	895,430	314,075	74,880	57,538	46,543	28,659	25,822	27,494	26,446	20,759	38,892	320,728
March 2021	-	365,189	128,091	30,539	23,466	18,982	11,688	10,531	11,213	10,786	8,466	28,153	273,073
January 2021	-	148,937	52,240	12,455	9,570	7,742	4,767	4,295	4,573	4,399	3,453	-28,153	273,073
February 2021	-	60,742	21,305	5,080	3,903	3,157	1,944	1,752	1,865	1,794	1,408	-50,952	229,038
March 2021	-	24,773	8,689	2,072	1,592	1,288	793	714	761	732	574	-87,284	190,599
	-	9,074,078	7,924,349	6,569,787	7,303,745	6,770,671	6,586,310	6,717,236	9,059,033	12,438,253	13,575,703	8,883,180	12,853,566
Estimated Excess/(shortfall)	(6,573,653)	1,770,189	510,679	(108,902)	1,110,837	1,014,447	1,102,924	1,781,171	3,684,228	3,351,678	2,125,425	(2,146,650)	2,002,525
(Over)/under booking revenue	(8,343,842)	1,259,510	619,582	(1,219,739)	96,390	(88,477)	(678,247)	(1,903,057)	332,549	1,226,253	4,272,076	(4,149,175)	1,910,599
Cash (Left to collect)/Overcollected	(6,573,653)	(1,920,444)	(783,823)	(417,531)	873,686	822,613	984,802	1,674,741	3,570,906	3,242,678	2,039,864	(2,079,595)	1,886,990

AI Resource Management Solution

AI enabled On Air IoT light to each resource

- Intuitive button and light design for quick bi-directional feedback
- With 1 button push
 - Conversational AI conducts troubleshooting and/or creates service ticket
 - Technicians can see resources with issues without requiring phone or tablet
 - Service ticket feedback through voice.
- Light color and pattern indicates resource status
 - Red – Do not use
 - Yellow – Equipment issue but is still functional
 - Blue – Non-critical maintenance or cleaning required
 - Green – Working properly
- Connect IoT devices to Management systems
 - Patient Management Systems
 - Asset Maintenance Systems
 - Access control and scheduling
- AI for predictive and preventative maintenance
 - Troubleshooting based on equipment make and model history
 - Service tickets created, updated, and closed automatically
- Increases productivity and staff satisfaction



Types of AI for IoT Maintenance

- Limited Memory AI
 - Generative AI for Natural Language Interface
 - Speech to Text and Text to Speech for voice interface
 - Sentiment analysis for improved interactions
 - User identification
 - Machine Learning for troubleshooting and problem solving
 - Problem, solution, fix
 - Locate alternate resources best fit
- Reactive AI
 - Real-time IoT data analysis for Predictive Maintenance





Healthcare Scheduling Problem

Patient scheduling is rigid and imperfect. Staff has little time for scheduling patients taking all of the complexity involved. Most are done over the phone in real-time.

- Appointments are scheduled without;
 - Understanding the patient demographics
 - Understanding the reason for visit
 - Understanding historical procedure times and resources
 - Patient historical appointment times
 - Practitioner historical appointment times
 - Analyzing when telemedicine is a better option
- Scheduling process can be frustrating for patients and staff
- Providers have difficulty in keeping on schedule
- Patients are left waiting
- Needed resources are not available
- Patients and providers feel rushed
- Reduced throughput and patient satisfaction



AI Scheduling for Improved Productivity

For Healthcare Facilities

AI Schedulers can be an assistant to staff, online for patients, or chat and voice enabled

- AI to analyze Patient interaction;
 - Patient sentiment during scheduling process
- Average time per appointment based on;
 - Patient demographics
 - Patient sentiment
 - Reason for visit
 - Patient historical appointment times
 - Practitioner historical appointment times
- AI Analyzes current appointment schedule and resource availability
- AI Scheduling optimal appointment date and time
- AI real-time scheduling updates
- Combine like visits together to optimize resources
- Increases throughput and patient satisfaction



Types of AI for Smart Scheduling

- Limited Memory AI
 - Generative AI for Natural Language Interface
 - Speech to Text and Text to Speech for chat and voice interface (NLP)
 - Sentiment analysis for improved interactions
 - Patient identification and validation
- Machine Learning optimization algorithms for scheduling
 - Patient preferences
 - Provider preferences
 - Resource allocation
 - Locate alternate resources/providers best fit





ROUTINE MAINTENANCE

- **Proven plan** for specific make/model
- Follow **manufacturer's instructions**
- Fulfill routine oil changes / tire pressure
- Follow-up on any **evidence-based recalls**



POPULATION HEALTH

- Compare population to **baseline**
- Implement **proven care model**
- Monitor outcomes
- Modify based on **available data**

DIAGNOSING ISSUE



- **Evaluate past** car damages and repairs
- Confirm current problem(s)
- **Reference data** on similar make/model
- Affirm with owner repair plan and cost

PATIENT CONDITION DIAGNOSTICS

- Review medical record for history and SDOH
- Reference **data on similar conditions**
- **Confirm diagnosis**
- Affirm patient resources and **payer coverage**



REPAIRS

- Confirm **availability of parts**
- Ensure team has **proper training**
- Replace defective part
- **Integrate** repair with car settings
- Test car ensuring fix worked



TREATMENT

- Confirm **supply chain availability**
- Ensure clinician has **proper training**
- Evaluate **adverse effects** of treatment
- Implement treatment
- **Review coding** for billing
- Collect payment

FOLLOW UP



- Explain repair and **risk of return**
- Client signature validation
- Review repair invoice
- Collect payment
- Enter info into **consolidated record**

FOLLOW UP – CONTINUOUS MONITORING

- Explain care plan **potential risks** to monitor
- Patient signature validation
- Patient follow-up documenting outcome
- **Compare outcome** to population data base
- Enter information into **centralized EMR**



Polling Question 2

Do you see any new opportunities for using AI in your daily operations after this presentation?



Polling Question 3

Would you like to talk more with one of our presenters about the topics covered today or challenges you're facing that you think could be solved with AI?



Thank you for
attending

Additional Questions?

Ron Present

Partner, Healthcare Industry
Ron.Present@armanino.com

Eric Shuss

Solution Architect
Eric.Shuss@armanino.com

Carmel Wynkoop

Partner-in-Charge, Business Analytics,
AI and Automation
Carmel.Wynkoop@armanino.com



Possible *(Re)*Defined™

Delivering impactful, bold solutions that increase clarity
and spark success for today and tomorrow.