

## 2023 Spring Provider Symposium

Artificial Intelligence in Healthcare: Improving Health Outcomes and Advancing Equity with New Tools

Friday, May 19, 2023
Virtual Conference





8:30AM – 8:40AM	Welcome and Introductions Jay Schechtman, MD, MBA Chief Clinical Officer, Healthfirst
	Susan J. Beane, MD, FACP Executive Medical Director, Healthfirst

Keynote Speaker	
8:40AM – 9:05AM	Al Up Close & Personal: The Very Human Business of Cultivating Artificial Intelligence Emily Kagan-Trenchard Senior Vice President, Chief of Consumer Digital Services, Northwell Health
9:05AM – 9:15AM	Question and Answer Session
Panel 1	
9:15AM – 10:15AM	Clinical Stratification with Machine Learning Sulé Baptiste Director, Data Science, Enterprise Analytics Program, Healthfirst
	Al4HealthyCities Initiative: Identifying and Mapping Cardiovascular Health Inequities Across NYC  Ji E. Chang, PhD  Assistant Professor of Public Health Policy and Management, New York University Global School of Public Health Principal Investigator, Al4HealthyCities Health Equity Network
	Applying Clinical AI to Reduce Readmissions by Over 20% Zenobia Brown, MD, MPH Senior Vice President, Population Health Associate Chief Medical Officer Executive Director, Northwell Health Solutions
	Hallie Bleau, ACNP-BC, MBA Vice President, Care Management, Northwell Health Solutions
10:15AM – 10:30AM	Question and Answer Session



10:30AM – 10:45AM	Break	
Panel 2		
10:45AM – 11:45AM	Al in Medical Imaging - From Image Quantitation to the Monitoring of Disease  Hayit Greenspan, PhD  Co-director, Artificial Intelligence and Emerging Technologies in Medicine (AIET), PhD Concentration, Graduate School of Biomedical Sciences, Icahn School of Medicine at Mount Sinai	
	Mortality Risk AI: A Use-case Involving 'Off-label' Use and Considerations for Equity Vincent J. Major, PhD Assistant Professor, Population Health New York University Grossman School of Medicine	
	Identifying Improbable Expressions with Neural Language Models to Measure Mental State and Status Trevor A. Cohen, MBChB, PhD, FACMI	
	Professor, Biomedical Informatics and Medical Education, Adjunct Professor, Department of Psychiatry, University of Washington	
11:45AM – 12:00PM	Question and Answer Session	
12:00PM	Final Remarks and Adjournment	

## Jay Schechtman, MD, MBA



#### Chief Clinical Officer, Healthfirst

Jay Schechtman, MD, MBA, has been with Healthfirst since 1999 and is responsible for all aspects of members' care and quality, encompassing medical and care management, clinical performance outcomes, and pharmacy.

Dr. Schechtman is an industry expert in population health, accountable care, high-risk populations, and integrated products. Dr. Schechtman also serves as the Assistant Clinical Professor in Community and Preventive Medicine at the Icahn School of Medicine at Mount Sinai.

Prior to working at Healthfirst, Dr. Schechtman was a National Medical Director for Magellan Specialty Health and a full-time academic physician at the Mount Sinai Medical Center in New York. He obtained a medical degree from Mount Sinai School of Medicine and an MBA from the combined healthcare management program of Mount Sinai and Baruch College. Dr. Schechtman is board-certified in rehabilitation medicine and was chief resident at Mount Sinai.



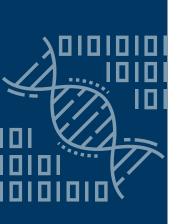
## Susan J. Beane, MD, FACP



#### **Executive Medical Director, Healthfirst**

Susan J. Beane, MD, FACP, joined Healthfirst in 2009, bringing with her extensive professional experience in managed care. As Executive Medical Director at Healthfirst, Dr. Beane focuses on transforming the delivery of care and optimization of medical outcomes through provider and community partnerships. Her interest and passion is collaboration across the healthcare delivery system to design and implement programs that improve access and equity for Healthfirst members and their communities.

Dr. Beane is a graduate of Princeton University and Columbia University Vagelos College of Physicians and Surgeons.



## **Emily Kagan-Trenchard**



#### Senior Vice President, Chief of Consumer Digital Services, Northwell Health

Emily Kagan-Trenchard offers a unique perspective from within the American medical system. A spoken-word-poet-turned-healthcare-executive, she is on a mission to remix the human in healthcare, challenging entrenched assumptions about what it means to give and receive care in the digital age.

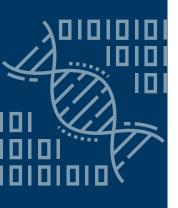
As Senior Vice President Chief of Consumer Digital Services for Northwell Health, New York State's largest health system, Emily leads teams that push the limits of how we use technology to make healthcare seamless and steeped in humanity while keeping the company competitive during a time of radical change. She is a big believer that innovation is an ongoing process, not just a box to check, and launched Northwell's first UX department to ensure that patient perspectives and needs drove the design of digital tools and systems.

Emily also spearheaded the transition of Northwell's website platform to an open-source stack, a move that helped the company save hundreds of thousands of dollars in software licensing costs; transitioning to open source also enabled the growth of an award-winning software development group whose applications include one of the first-ever healthcare uses of an Amazon Alexa skill.

Before joining Northwell, Emily led web systems for New York City's Lenox Hill Hospital, where she drove the development of many early consumer health tools, including the first-ever implementation of the ZocDoc scheduling platform for a hospital.

Emily's career is a continual exploration of the effects of technology, language, and design on the ways we care for one another. Outlets ranging from The Wall Street Journal to TechRepublic and CMS Wire turn to her for a fresh perspective on emerging technologies and the future of healthcare.

She is also a nationally recognized poet, essayist, and speaker; recent speaking engagements include the Cleveland Clinic's Empathy and Innovation conference and WebSummit in Lisbon. Emily holds a master's degree in science writing from MIT and a bachelor's degree from the University of California at Berkeley.



## Sulé Baptiste



Director, Data Science, Enterprise Analytics Program, Healthfirst

Sulé Baptiste is a seasoned data science professional with extensive experience in the healthcare industry. He currently serves as Director of Data Science at Healthfirst, a provider-sponsored health plan operating in New York City. In this role, Sulé oversees the development and implementation of data-informed strategies to improve healthcare outcomes and enhance New Yorkers' experiences with the healthcare delivery system. He is known for his expertise in leveraging advanced analytics techniques, machine learning, epidemiological principles, and customer-centric design to solve complex healthcare challenges. Before joining Healthfirst, Sulé worked at HCSC, a BCBS carrier, where he played a key role in developing novel analytic solutions for payers and providers to work together more effectively. Through his work in payer-provider collaborations across various geographies and disease states, Sulé has gained a profound understanding of the cultural differences and preference sensitivities for those seeking care. He's passionate about building analytic solutions that ensure healthcare is accessible and appropriate for all patients, regardless of their background. Sulé holds a Bachelor of Science in Physics from the University of Michigan and a Master of Epidemiology and Biostatistics from Northwestern University.



## Ji E. Chang, PhD



Assistant Professor, Public Health and Policy Management Principal Investigator, Al4HealthyCities Initiative, New York University

Ji Eun Chang, PhD, is Assistant Professor in the Department of Public Health Policy and Management at the New York University School of Global Public Health, where she also serves as the public health policy and management concentration director for the PhD program.

Professor Chang uses mixed-methods research designs and draws from qualitative, quantitative, and geospatial data to demonstrate disparities and highlight barriers faced by safety net providers and underserved patients in delivering and accessing equitable care. Professor Chang is the principal investigator of the AI4Healthy Cities Initiative in New York City, a multi-city collaboration among the Novartis Foundation, Microsoft AI4Health, and local health officials to reduce cardiovascular health inequities through the use of big data analytics. Dr. Chang is also the co-principal investigator of an NIH NIDA-funded study to support the implementation of transitional opioid programs in safety net hospitals. Dr. Chang holds a BA in Economics from the University of California at Berkeley, an MS in Public Policy and Management from Carnegie Mellon University, and a PhD in Public Administration from New York University.



## Zenobia Brown, MD, MPH



Senior Vice President, Population Health Associate Chief Medical Officer Executive Director, Northwell Health Solutions

As medical director for Health Solutions, the Care Management Organization (CMO) and Senior Vice President, Dr. Brown oversees, designs, implements, and manages the Population Health Care Management portfolio for Northwell Health, the largest health system in the New York metro area. In this role she has established and innovated multiple clinical and episodic care models designed to demonstrate high-value clinical and financial outcomes through clinical transformation. These innovations are powered by technological integrations and cross collaboration with institutions and providers across the care continuum as well as clinical, financial, and national leaders in population health and healthcare reform.

She received her medical degree from Columbia University College of Physicians and Surgeons and completed a family medicine residency and chief residency at NewYork-Presbyterian/Columbia University Medical Center. Dr. Brown spent more than a decade in Florida, where she helped implement Department of Health community-based services, established multiple community-based programs, and served as Associate Medical Director at Tidewell Hospice and Palliative Care. Dr. Brown received a master's degree in public health from the University of South Florida and is board-certified in Family Medicine and in Hospice and Palliative Care. Dr. Brown also maintains a clinical practice within Northwell's House Calls program that cares for patients with advanced illness in value-based arrangements. Dr. Brown has lectured nationally and internationally and has published on payment reform and practice transformation.



## Hallie Bleau, ACNP-BC, MBA



Vice President Care Management, Health Solutions, Northwell Health

Hallie joined Northwell in 2011 at Forest Hills Hospital (FHH) after receiving her Nurse Practitioner degree from New York University in Adult Acute Care. Hallie quickly became a valued member of the FHH team working clinically in Cardiology with both the Heart Failure and Electrophysiology divisions. Hallie went on to support the clinical mission and vision of FHH administratively as Director of Patient Care Services and ultimately as a Senior Administrative Director. Through this role Hallie championed quality, efficiency, and the expansion/advocacy of Advanced Care Providers in the facility.

In 2016 Hallie joined the Health Solutions team as Assistant Vice President of Transitional Care Management. In 2022 Hallie took on the role of Vice President of Care Management at Health Solutions. Over the past six years Hallie has been instrumental in the development and deployment of important value-based clinical programs ranging from expectant mothers to patients transitioning from the hospital with complex conditions such as heart failure and, most recently, COVID transitional care management services. Hallie has been very involved over the past three years helping to implement a chat bot and other innovative technology that has been integrated in to helping to transition patients from hospital to home. Hallie's accomplishments have been key to the success of our system initiatives and Health Solutions overall.



## Hayit Greenspan, PhD



Co-director, Artificial Intelligence and Emerging Technologies in Medicine (AIET), PhD Concentration, Graduate School of Biomedical Sciences, Icahn School of Medicine, Mount Sinai

Dr. Greenspan is Co-director of Artificial Intelligence and Emerging Technologies in Medicine (AIET), PhD Concentration, at the Graduate School of Biomedical Sciences at the Icahn School of Medicine at Mount Sinai in New York. In 2021 she was appointed Director of AI in Imaging at BMEII and Director of AI Engineering Core at BMEII. In these roles, she will focus on developing leading AI solutions for medical imaging applications, form collaborative efforts of the engineering and the clinical needs, and lead the development of educational efforts in AI for medical applications. Dr. Greenspan holds academic appointments as Professor of Radiology at the BioMedical Engineering and Imaging Institute (BMEII) at the Icahn School of Medicine at Mount Sinai and of Biomedical Engineering at Tel-Aviv University. Dr. Greenspan is also a co-founder and chief scientist of RADLogics Inc., a company that focuses on bringing newly developed AI image analysis tools to radiologists for clinical use.

Dr. Greenspan received her master's degree in electrical engineering from the Technion-Israel Institute of Technology. She earned her doctorate in Electrical Engineering from California Institute of Technology and completed a postdoc with the computer science division at the University of California-Berkeley. She was a visiting professor at Stanford University's Department of Radiology and at the Multimodal Mining Group at IBM Research, Almaden, California.

Dr. Greenspan has more than 200 publications in leading international journals and conferences (h-index 53) and has received several awards and patents. She is a member of journal and conference program committees, including SPIE medical imaging, IEEE ISBI and MICCAI. She served as an associate editor for the IEEE Transactions on Medical Imaging (TMI) journal. Recently she was Program Chair for IEEE ISBI 2020. In 2016 she was the lead co-editor for a special issue on Deep Learning in Medical Imaging in IEEE TMI. In 2017 she co-edited an Elsevier Academic Press book on deep learning for medical image analysis and is a co-editor of the second edition of the book.



## Vincent J. Major, PhD



Assistant Professor, Population Health, New York University Grossman School of Medicine

Vincent Major, PhD, is an Assistant Professor of Population Health at New York University Grossman School of Medicine who works closely with New York University Langone Health's Predictive Analytics Unit. Vincent's work focuses on applied machine learning for healthcare and involves the development, validation, and deployment of predictive models using electronic health record (EHR) data.

Vincent received his PhD from New York University in 2020 for his thesis work using EHR data to develop machine learning models to estimate risk of death within 60 days of hospitalization to encourage end-of-life planning. For his master's research, Vincent studied the respiratory dynamics of critical care patients supported by invasive mechanical ventilation using mathematical modeling and signal processing methods.



## Trevor A. Cohen, MBChB, PhD, FACMI



Professor, Biomedical Informatics and Medical Education Adjunct Professor, Department of Psychiatry, University of Washington

Dr. Cohen trained and practiced as a physician in South Africa before obtaining his PhD in 2007 in Medical Informatics at Columbia University. His doctoral work focused on an approach to enhancing clinical comprehension in the domain of psychiatry, leveraging distributed representations of psychiatric clinical text. Upon graduation, he joined the faculty at Arizona State University's nascent Department of Biomedical Informatics, where he contributed to the development of a curriculum for informatics students, as well as for medical students at the University of Arizona's Phoenix campus. In 2009 he joined the faculty at the University of Texas School of Biomedical Informatics, where he developed a National Library of Medicine-funded research program concerned with leveraging knowledge extracted from the biomedical literature for information retrieval and pharmacovigilance and contributed toward large-scale national projects such as the Office of the National Coordinator's SHARP-C initiative. Since joining the University of Washington in 2018, he has developed new lines of research applying neural language models to characterize patientgenerated text and render the scientific literature more comprehensible to the public and developed methods to reduce the tendency of such models to make biased predictions in text categorization tasks. He is also the lead editor of a comprehensive textbook on AI in medicine, published by Springer in 2022.

Research: Dr. Cohen's research focuses on the development and application of methods of distributional semantics—methods that learn to represent the meaning of terms and concepts from the ways in which they are distributed in large volumes of electronic text. The resulting representations (concept or word embeddings) can be applied to a broad range of biomedical problems, such as: (1) using literature-derived models to find plausible drug/side-effect relationships; (2) finding new therapeutic applications (drug repurposing); (3) modeling the exchanges between users of health-related online social media platforms; and (4) identifying phrases within psychiatric narrative that are pertinent to particular diagnostic constructs (such as psychosis). An area of current interest involves the application of neural language models to detect linguistic manifestations of neurological and psychiatric conditions.







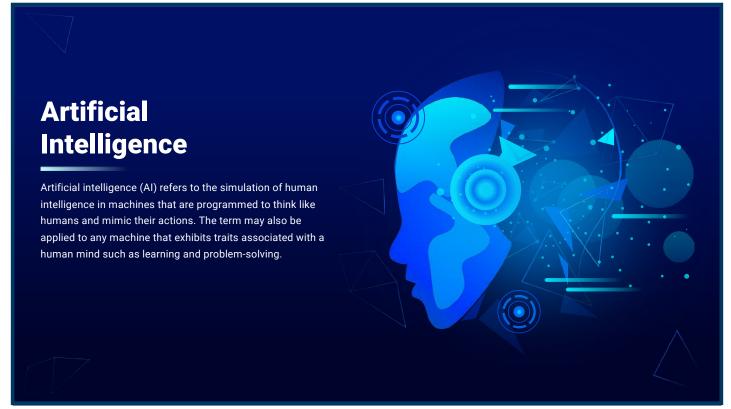
### **AI UP CLOSE & PERSONAL**

The very human business of cultivating artificial intelligence.

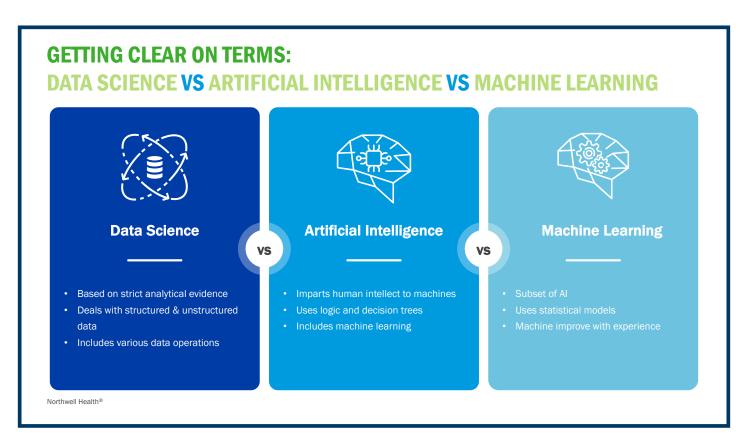
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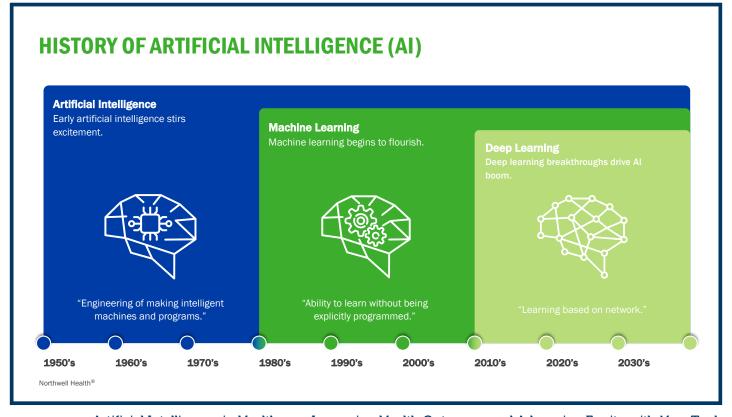
#### **Emily Kagan Trenchard**

SVP, Chief of Consumer Digital Solutions Northwell Health

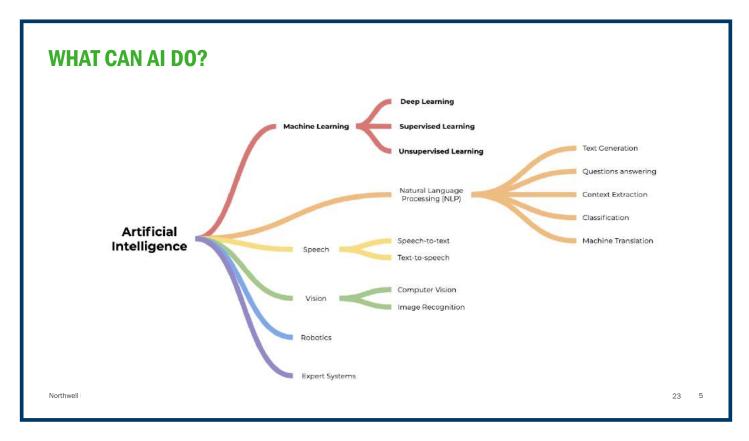


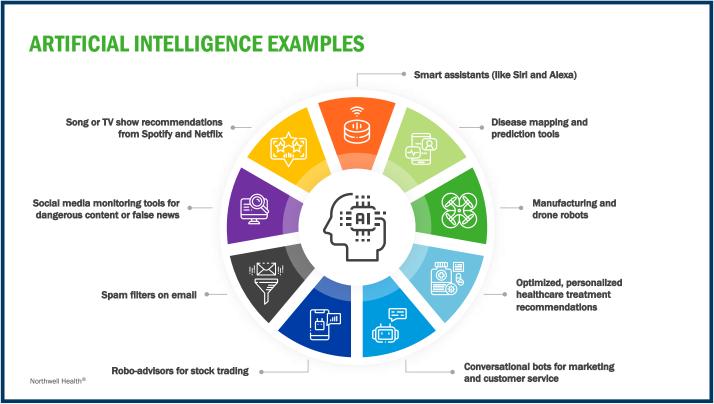




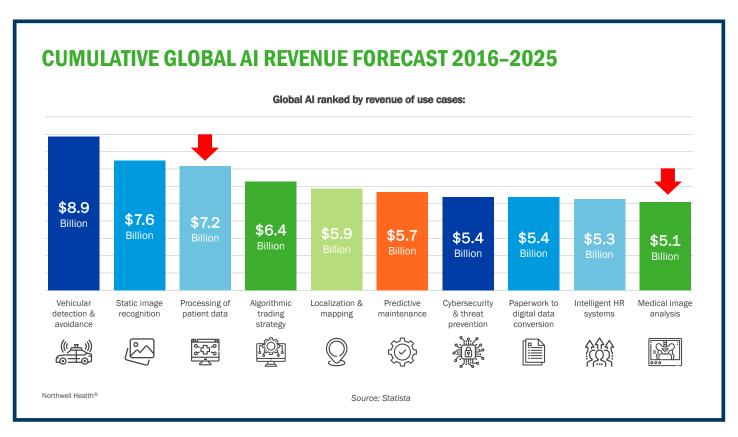


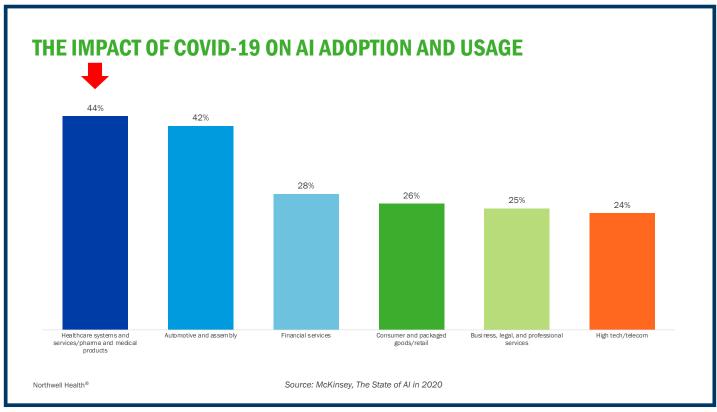










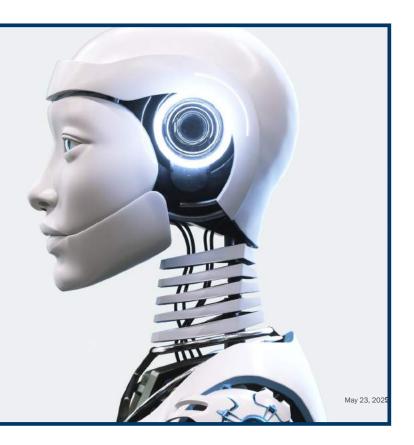




Success in creating effective Artificial Intelligence could be the biggest event in the history of our civilization. Or the worst.

So we cannot know if we will be infinitely helped by AI, or ignored by it and sidelined, or conceivably destroyed by it.

- Stephen Hawking



### Why is there so much AI snake oil?

- Al is an umbrella term for a set of related technologies
- Some of those technologies have made genuine, remarkable, widely-publicized progress
- Companies exploit public confusion, slap the "Al" label on whatever they're selling

Source: Arvind Narayanan Associate Professor of Computer Science Princton University @random\_walker



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#### Genuine, rapid technological progress

- · Content identification (Shazam, reverse image search)
- · Face recognition\*
- Medical diagnosis from scans
- · Speech to text
- Deepfakes\*

Perception

\* Ethical concerns because of high accuracy

#### Far from perfect, but improving

- Spam detection
- · Detection of copyrighted material
- Automated essay grading
- · Hate speech detection
- Content recommendation

Automating judgment

Ethical concerns in part because some error is inevitable

#### Fundamentally dubious

- · Predicting criminal recidivism
- · Predicting job performance
- Predictive policing
- · Predicting terrorist risk
- · Predicting at-risk kids

Predicting social outcomes

Ethical concerns amplified by inaccuracy

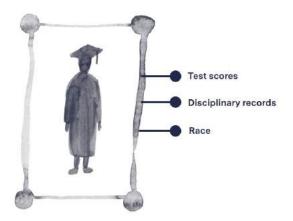
Source: Arvind Narayanan, Associate Professor of Computer Science @random\_walker

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### **CASE STUDY:**

#### WISCONSON'S DROP OUT RISK ALGORITHM

Source: "False Alarm: How Wisconsin Uses Race and Income to Label Students "High Risk" - Todd Feathers, The Markup 2023



Wisconsin uses a computer model to predict how likely middle school students are to graduate from high school on time.

Twice a year, the Dropout Early Warning System predicts each student's likelihood of graduating based on data such as test scores, disciplinary records, and race.

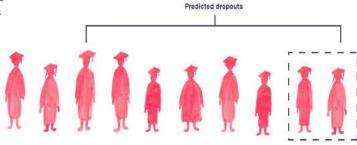
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#### **3 KEY FINDINGS**

Source: "False Alarm: How Wisconsin Uses Race and Income to Label Students "High Risk" - Todd Feathers, The Markup 2023

 The Dropout Early Warning System (DEWS) is wrong nearly three quarters of the time when it predicts a student won't graduate on time, and it's wrong at significantly greater rates for Black and Hispanic students than it is for White students.



Actual dropouts

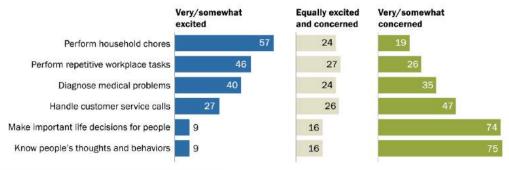
 The system labels students low, moderate, or high risk. Principals, superintendents, and other educators who use DEWS told us they received little training on how those predictions are generated. Students said the high-risk labels are stigmatizing and discouraging. A forthcoming <u>academic study</u> from researchers based out
of the University of California, Berkeley, who shared data and
prepublication findings with The Markup found that DEWS
has had no effect on graduation rates for students it labels
high risk. But if schools used it to prioritize certain students,
it could lead to students of color being "systemically
overlooked and de-prioritized."

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#### **PUBLIC CONCERNS WITH IMPLEMENTING AI**

## Americans are concerned about AI systems that could know people's thoughts and make important life decisions for them

% of U.S. adults who say they would be \_\_ if artificial intelligence computer programs could do each of the following



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted Nov. 1-7, 2021

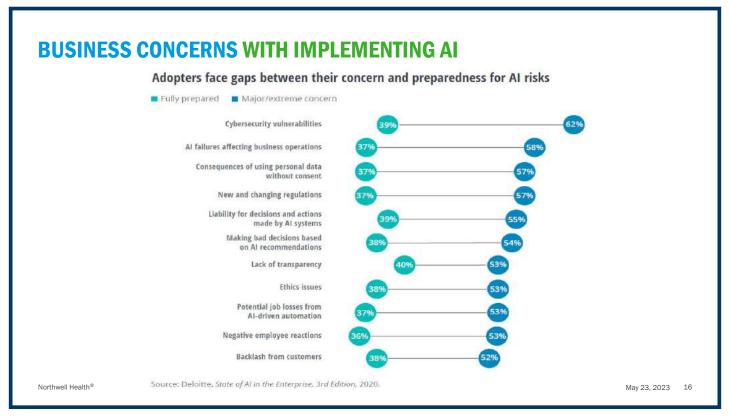
"Al and Human Enhancement: Americans" Openness Is Tempered by a Range of Concerns'

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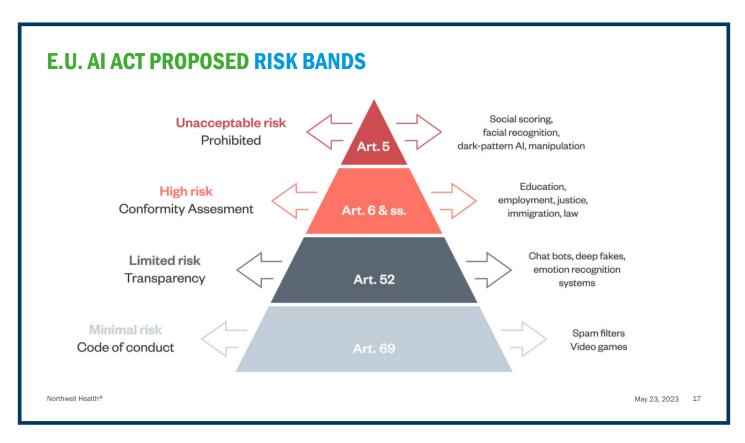
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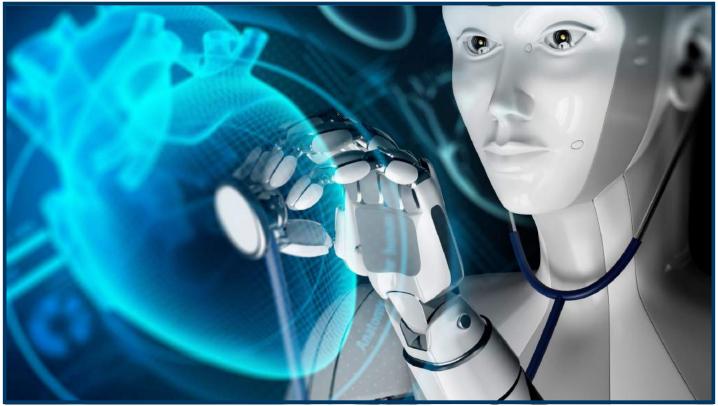


#### **PUBLIC CONCERNS WITH IMPLEMENTING AI** Public is divided on whether AI programs can be designed to make fair decisions consistently % of U.S. adults who say it is \_\_\_for people to design artificial intelligence Whose experiences and views are taken into account when Al programs are computer programs that can consistently make fair decisions in complex situations designed? Views vary depending on the demographic group in question % of U.S. adults who say each of the following ... Not possible Possible Not sure The people who design U.S. adults 28 41 artificial intelligence computer programs take NET Note: Respondents who did not give an answer are not shown. into account the Note: Acaptable and the state of the state o experiences 4 7 and views ... ... of men 12 28 51 37 PEW RESEARCH CENTER ... of women 25 38 ... of White adults 39 43 33 ... of Hispanic adults 33 17 6 23 Note: Figures may not add up to NET values due to rounding. Respondents who did not give an answir are not shown Source: Survey conducted Nov. 1-7, 2021, "Al and Human Enhancement, Americans: Openness is Tempered by a Range of Concerns". PEW RESEARCH CENTER Northwell Health® May 23, 2023 15



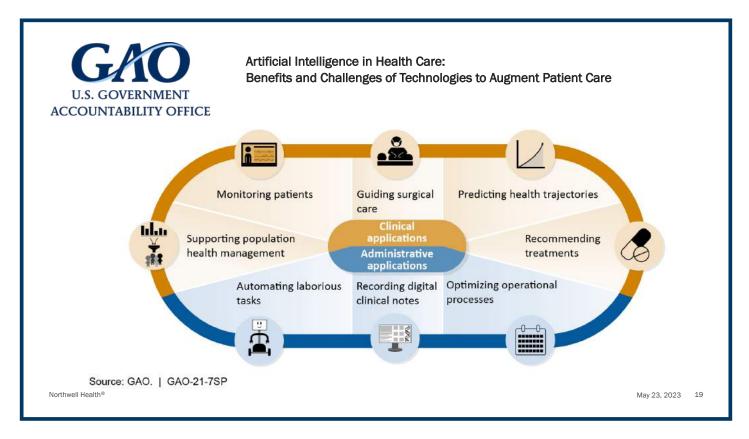


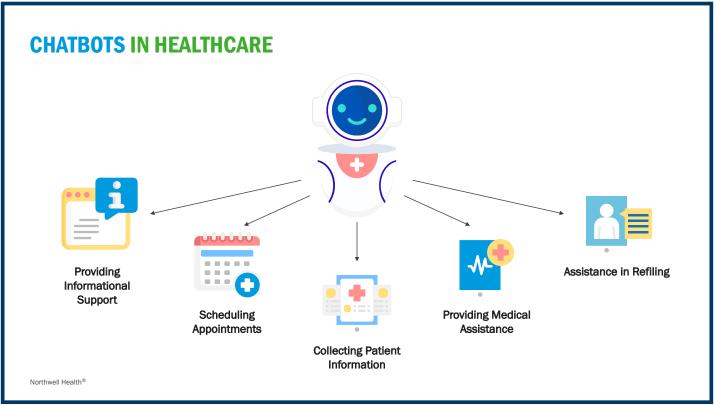




Artificial Intelligence in Healthcare: Improving Health Outcomes and Advancing Equity with New Tools





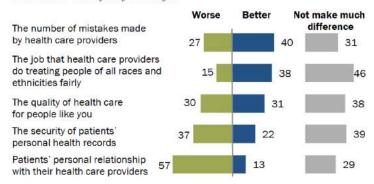




#### AI IN HEALTHCARE: PATIENT PERSPECTIVE

#### Americans tilt positive on Al's ability to reduce medical errors; greater concern around data security, patient-provider relationships

% of U.S. adults who say the use of artificial intelligence in health and medicine to do things like diagnose diseases and recommend treatments would make each of the following ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted Dec. 12-18, 2022

"60% of Americans Would Be Uncomfortable With Provider Relying on Al in Their Own Health Care"

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#### AI IN HEALTHCARE: PATIENT PERSPECTIVE

#### Majority of Americans say they would want AI to be used in their own skin cancer screening

% of U.S. adults who say ...

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Source: Survey conducted Dec. 12-18, 2022

60% of Americans Would Be Uncomfortable With Provider Relying on Al in Their Own Health Care

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#### Large majority of Americans do not want to use an Al chatbot to support their mental health

% of U.S. adults who say they would \_\_ to use an artificial intelligence chatbot if they were seeking mental health support



Note: Respondents who did not give an answer are not shown

Source: Survey conducted Dec. 12-18, 2022

60% of Americans Would Be Uncomfortable With Provider Relying on Al in Their Own

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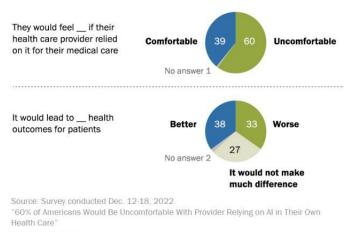
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## AI IN HEALTHCARE: PATIENT PERSPECTIVE

## Fewer than half in U.S. expect artificial intelligence in health and medicine to improve patient outcomes

% of U.S. adults who say that thinking about the use of artificial intelligence in health and medicine to do things like diagnose disease and recommend treatments ...



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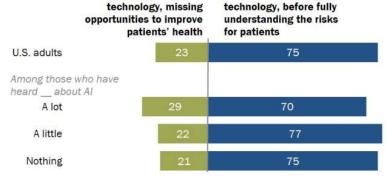
## AI IN HEALTHCARE: PATIENT PERSPECTIVE

## Americans more concerned that health care providers will adopt AI technologies too fast than too slowly

% of U.S. adults who say that, thinking about the use of artificial intelligence in health and medicine to do things like diagnose disease and recommend treatments, they are more concerned that health care providers will ...

Move too fast using this

24



Note: Respondents who did not give an answer are not shown.

Move too slowly using this

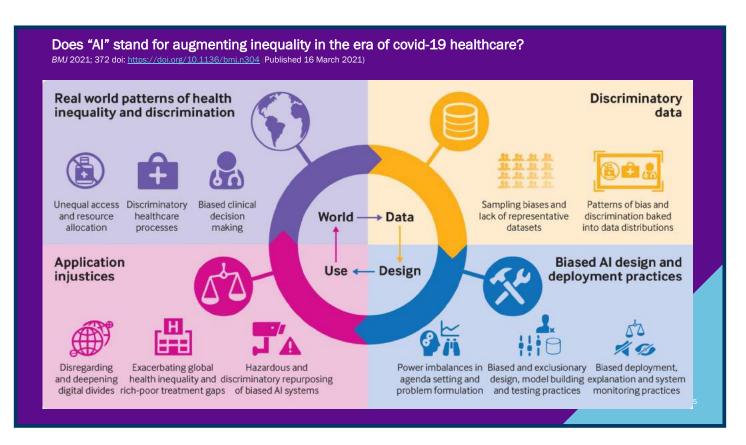
Source: Survey conducted Dec. 12-18, 2022

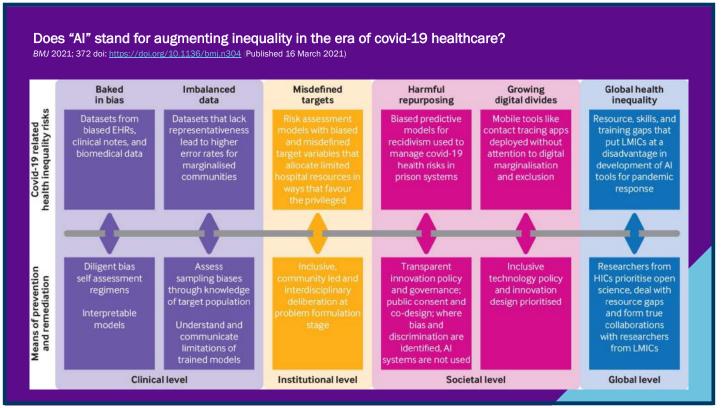
"60% of Americans Would Be Uncomfortable With Provider Relying on Al in Their Own Health Care"

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The Coalition for Health AI is a community of academic health systems, organizations, and expert practitioners of artificial intelligence (AI) and data science. These members have come together to harmonize standards and reporting for health Al and educate endusers on how to evaluate these technologies to drive their adoption. Our mission is to provide guidelines regarding an ever-evolving landscape of health Al tools to ensure high quality care, increase credibility amongst users, and meet health care needs.



**BLUEPRINT FOR** TRUSTWORTHY AI IMPLEMENTATION GUIDANCE AND ASSURANCE FOR **HEALTHCARE COALITION FOR HEALTH AI** VERSION 1.0 \_ APRIL 04, 2023

- ✓ Valid and Reliable
- ✓ Beneficial and Useful
- ✓ Safe and Secure
- ✓ Accountable and Transparent

Link to blueprint

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## WE CAN WORK WITH ARTIFICIAL INTELLIGENCE, BUT WE CAN'T DO SO WITH ARTIFICIAL INTIMACY

Biggest fears for Al use:

- · Making important life decisions
- Knowing people's thoughts
- · Lack of ethics
- Lack of creativity
- Interfering with the patient-provider relationship
- · Supporting their mental health
- Trust Vulnerability



Esther Perel, SXSW 2023 https://youtu.be/vSF-Al45hQU

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# TO FIGHT DISPARITIES, WE MUST RAISE THESE ARTIFICIAL INTELLIGENCES AS WE WOULD RAISE OUR OWN CHILDREN.

- · What lessons do we teach directly and what is inferred?
- · What do we reward? What do we penalize?
- · How do we demonstrate ethics, not just encode them?
- · How do we avoid a diet of digital junk food?
- When do we take the lead and when do we allow ourselves to follow?
- · How do we limit risk and interrupt dangerous behavior?
- What will be the hallmarks of trust and what will we do when trust is broken?
- · How will they influence us? How will they influence one another?

