



We'll get you there.

CPAs | CONSULTANTS | WEALTH ADVISORS

Cybersecurity Challenges for Health Care in the Age of AI

February 1, 2024



The information herein has been provided by CliftonLarsonAllen LLP for general information purposes only. The presentation and related materials, if any, do not implicate any client, advisory, fiduciary, or professional relationship between you and CliftonLarsonAllen LLP and neither CliftonLarsonAllen LLP nor any other person or entity is, in connection with the presentation and/or materials, engaged in rendering auditing, accounting, tax, legal, medical, investment, advisory, consulting, or any other professional service or advice. Neither the presentation nor the materials, if any, should be considered a substitute for your independent investigation and your sound technical business judgment. You or your entity, if applicable, should consult with a professional advisor familiar with your particular factual situation for advice or service concerning any specific matters.

CliftonLarsonAllen LLP is not licensed to practice law, nor does it practice law. The presentation and materials, if any, are for general guidance purposes and not a substitute for compliance obligations. The presentation and/or materials may not be applicable to, or suitable for, your specific circumstances or needs, and may require consultation with counsel, consultants, or advisors if any action is to be contemplated. You should contact your CliftonLarsonAllen LLP or other professional prior to taking any action based upon the information in the presentation or materials provided. CliftonLarsonAllen LLP assumes no obligation to inform you of any changes in laws or other factors that could affect the information contained herein.

Session CPE Requirements

- You need to attend 50 minutes to receive the full 1 CPE credit.
- 4 Attendance Markers that read: “I’m Here,” will be launched during this session. You must respond to a minimum of 3 to receive the full 1 CPE credit.

****Both requirements must be met to receive CPE credit****



Learning Objectives



Recognize current and upcoming applications of AI



Recall steps to better control AI integration



Identify and mitigate cyber risks associated with AI implementation



Types of Artificial Intelligence

- Many Types of AI Systems have Relevancy in Healthcare
- Machine Learning
- Natural Language Processing
- Rule-Based Algorithms
- Robots



Benefits of AI in Healthcare



Alleviate Issues caused by a Lack of Trained Professionals



Free up Doctors by Performing Mundane Tasks

Note Taking
Summarization



Improve Physician-Patient Communication & Patient Engagement

Possible Uses in Healthcare

Many of these are already being used or demonstrated



Automated Diagnosis & Disease Treatment



Virtual Nursing Assistants



Devices for Detecting Self-Administered Medication



AI-Enabled Surgical Robots



Analysis of Radiology Images

Google Health – Breast Cancer Detection

- Mammograms Examined by a Single Radiologist
 - Due to a Shortage in Trained Radiologist
- AI System Analyzes Mammogram Images
 - Each Image is Assigned a Risk Score
 - Images with a High-Risk Score are Flagged
- Results have been Positive
 - False Positive Rates Dropped by 6%
 - False Negative Rates Dropped by 9%



Beth Israel – Bacterial Infection Detection

- AI Microscope trained to Identify Bacteria within Blood
- Utilizes Neural Network to Categorize Bacteria
 - Success in Identifying E Coli, Strep, and Staph Infections
- AI Achieved a 93% Accuracy Rating



Future Possibilities

- AI-Assisted Radiotherapy
 - Ability to Start Life-Saving Treatment Faster
- AI-Driven Drug & Disease Research
 - Organizations like DeepMind & AlphaFold
- AI Therapy
 - Ease of Sharing Thoughts with Robot



Problems Facing AI in Healthcare



PATIENTS ARE
UNCOMFORTABLE WITH AI
IN HEALTHCARE



AI IS DIFFICULT TO
REGULATE CORRECTLY



AI IS LACED WITH CYBER
SECURITY CONCERNS

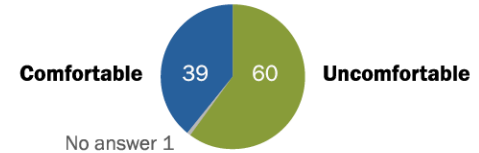
AI's PR Problem

- Most are uncomfortable with AI in Healthcare
- Most believe AI will do little to Improve Healthcare

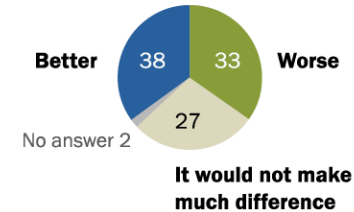
Fewer than half in U.S. expect artificial intelligence in health and medicine to improve patient outcomes

% 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 ...

They would feel __ if their health care provider relied on it for their medical care



It would lead to __ health outcomes for patients



Source: Survey conducted Dec. 12-18, 2022.

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

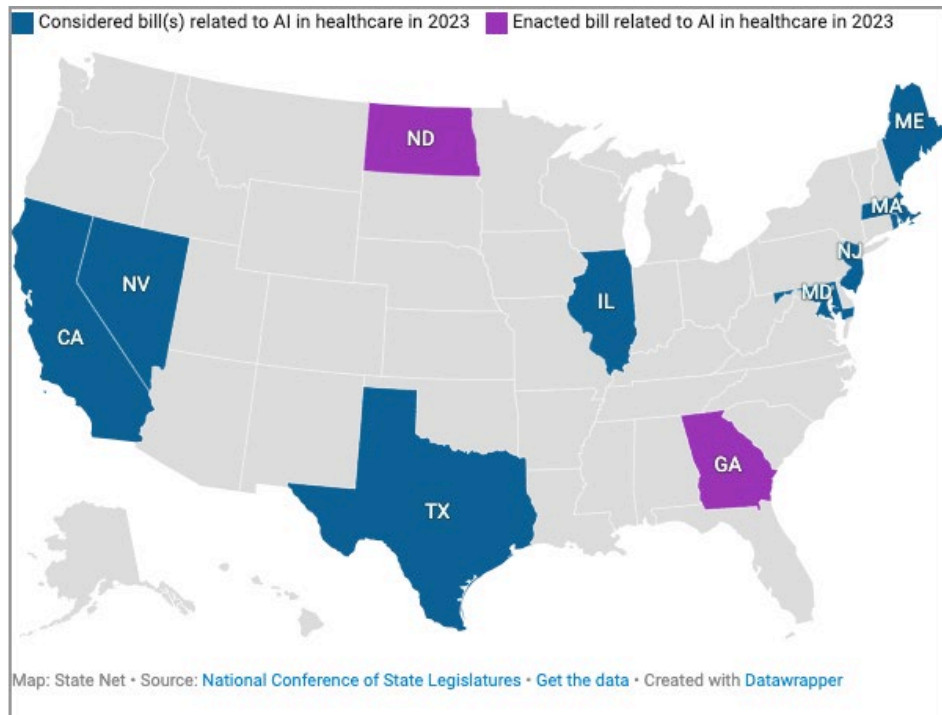
PEW RESEARCH CENTER

<https://www.pewresearch.org/about/terms-and-conditions/>



Regulation in America

- Majority of States are Adopting AI Legislation
- Only 11 States include Legislation Related to AI-Healthcare



Healthcare-AI Related Legislation

- Prevent AI Decision Systems from Discriminating based on Race, Color, Sex, Age, & Disability
 - California
- State Pre-Approval of AI Systems & Requirement of Patient Consent
 - Illinois
 - Massachusetts
 - Rhode Island
- Prevention of Policies that Substitute Nurse Judgement for that Provided by AI
 - Illinois
 - Maine



Balancing AI Use

“The greatest challenge to AI in these healthcare domains is not whether the technologies will be capable enough to be useful, but rather ensuring their adoption in daily clinical practice.”

“AI systems will not replace human clinicians on a large scale, but rather will augment their efforts to care for patients.”



Cyber Concerns

Increased Attack Surface

Data Leaks of Protected Health Information (PHI)

- AI Stores & Utilizes a Plethora of Data

Ensuring Compliance with HIPAA

Bias & Transparency Issues



Statistics of Healthcare Cyber Attacks

- Major Vulnerabilities are Third-Party Vendors & IoT Devices



[This Photo](#) by Unknown Author is licensed under [CC BY-NC](#)



HIPAA Requirements



PHI MUST ONLY BE ACCESSED BY
AUTHORIZED PARTIES



ESTABLISH CONFIDENTIALITY,
INTEGRITY, AND AVAILABILITY OF PHI
VIA ADMINISTRATIVE, PHYSICAL, AND
TECHNICAL DEFENSES



PATIENTS MUST BE NOTIFIED WHEN A
BREACH DOES TAKE PLACE



Any Questions?



Thank you!

Lindsay Timcke

Signing Director • Digital – Cybersecurity

lindsay.timcke@claconnect.com

Javier Young

Principal • Digital - Cybersecurity

javier.young@claconnect.com



CLAconnect.com



CPAs | CONSULTANTS | WEALTH ADVISORS

©2024 CliftonLarsonAllen LLP. CLA (CliftonLarsonAllen LLP) is an independent network member of CLA Global. See [CLAglobal.com/disclaimer](https://claglobal.com/disclaimer). Investment advisory services are offered through CliftonLarsonAllen Wealth Advisors, LLC, an SEC-registered investment advisor.