



Best Practices for Safe & Effective AI

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Topics for Today

1. AI opportunities and risks
2. Approach to responsible AI in healthcare

What and why we care

AI is “a computer system capable of activities normally associated with cognitive effort”.[±]

AI presents an opportunity to redefine healthcare –transforming experience, outcomes, and efficiency.

AI in healthcare uniquely requires transparency, validity, and evaluation of bias to mitigate risk.

AI Healthcare Opportunities

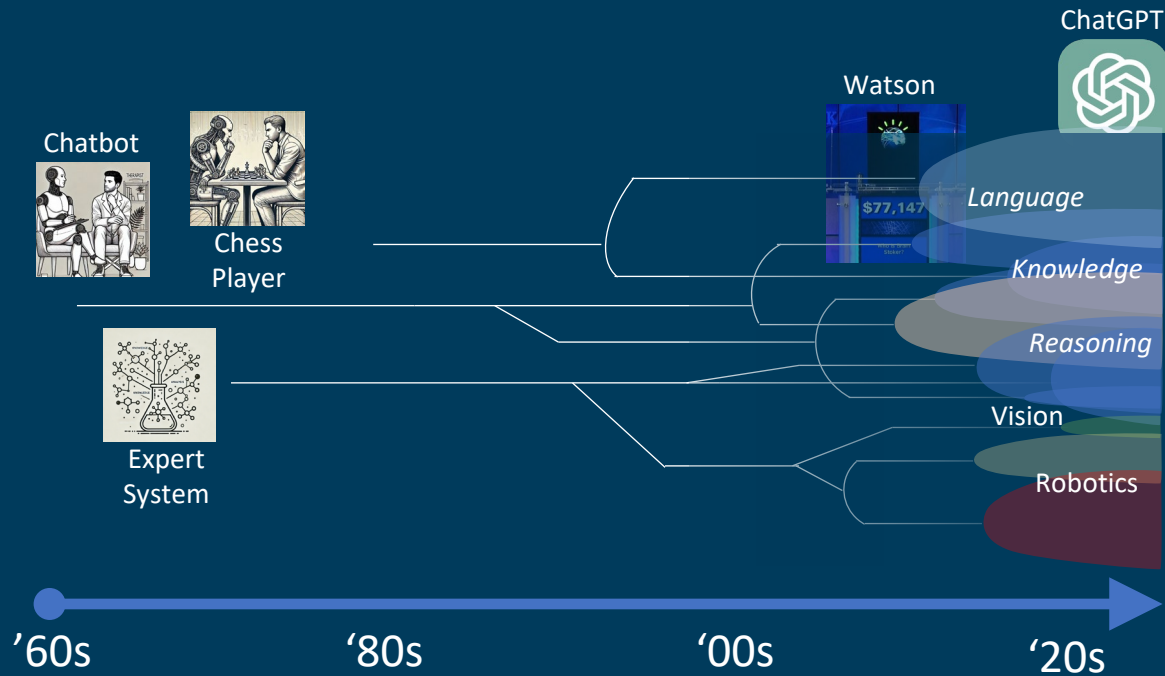
Experience, outcomes, efficiency

Augmented Intelligence

- Encyclopedic knowledge
- 24/7 availability
- Automation of mundane tasks
- Synthesize vast information e.g., chart or evidence review
- Recognize patterns e.g. radiology, pathology, dermatology

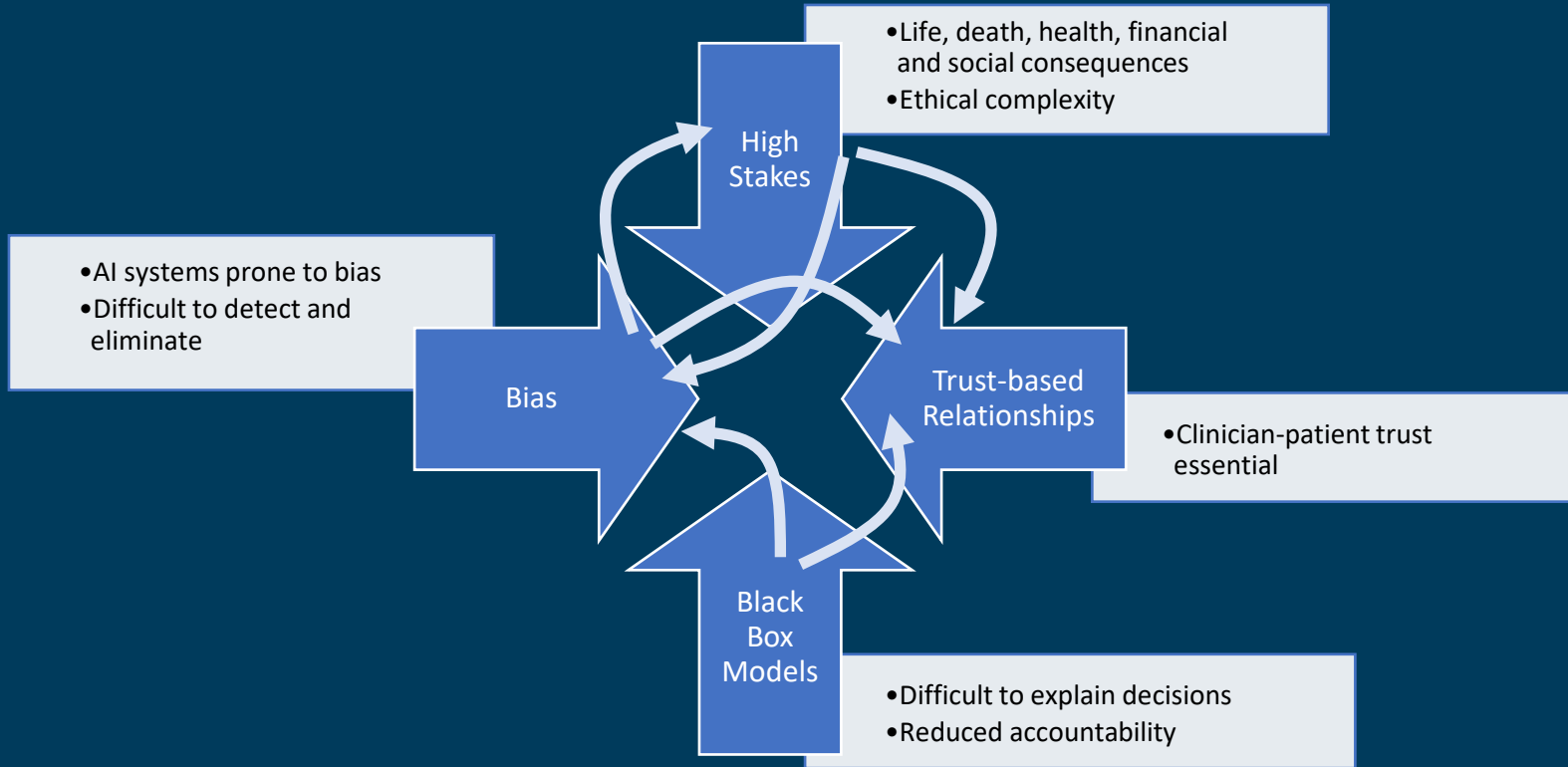


AI's Evolution



Unique Risks for Healthcare AI

Convergence of factors



Unique Risks for Healthcare AI

AI bias

A Tilt away from Fairness

- Subtle, hard to see
- Small degree of bias hardwired into decision-making leads to magnification at scale
- Risk of correlations with variables - underlying social inequalities
- Use case matters, a lot
- Think about in development, validation & deployment

False negative consequences

- Prior healthcare utilization to predict future needs (think access issues)
- Risk used to assign extra resources
- Vulnerable subgroups miss out on needed resources

False positive consequences

- Incorporate zip code to predict appointment no-show risk
- Overbook appointment if high risk
- Increases access barriers for vulnerable subgroups

Responsible AI at Advocate

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FAIR AI

Framework for **A**ppropriate **I**mplementation & **R**evision
of **A**I

FAIR AI @ Advocate

Principles Guide Comprehensive Review

Equitable & Ethical

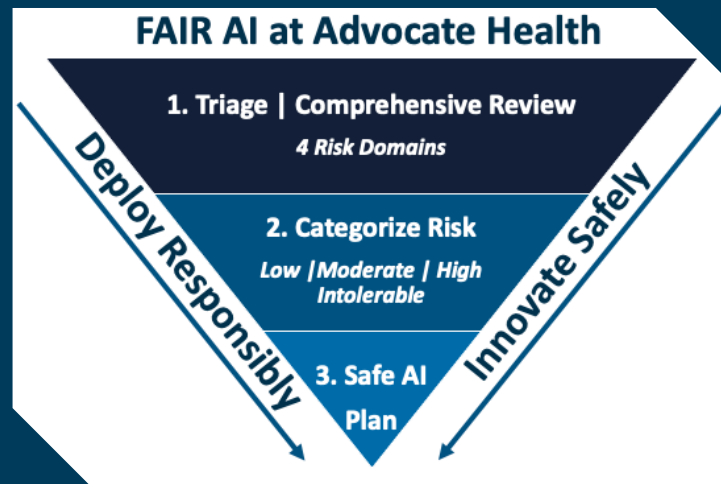
Valid & Reliable

Transparent

Impactful

A **comprehensive**, practical framework

Clear requirements for **responsible, safe AI**



1a

FAIR AI. Triage

Clear Criteria. Accountability.

Exclusions:

1. Simple scoring systems:

A user can easily calculate and understand inputs and outputs

2. Medical device:

A physical medical device that incorporates AI as part of its function as defined and reviewed by the FDA (e.g., a defibrillator)

3. Research purposes:

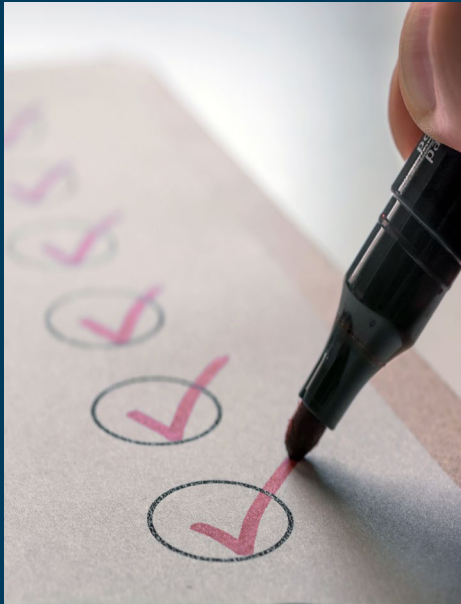
Intended only for one of the following:

- a. Any non-human research
- b. Any retrospective human research
- c. Prospective human study with informed consent. Does NOT exclude using an AI solution in workflows PRIOR to research subject consent.

1b

FAIR AI: Comprehensive Review

Practical. Efficient. 2-Step Review.



Principles Guide Comprehensive Review

Equitable & Ethical

Valid & Reliable

Transparent

Impactful

Low Risk Screen

Questions guide the nimble determination of an AI solution being low-risk & requiring no further evaluation.



In-depth review

All AI solutions that are not low-risk are evaluated against additional questions

Low Risk Screen:

1st five criteria

1. Adverse effects – gauge harms
2. Trust – patient & provider
3. Discriminate – input variables
4. Discriminate – output recs
5. Context – vulnerability

Low Risk Screen

	Question	No or N/A	YES
1	Adverse effects Is there reasonable potential that the AI introduces adverse effects that may be more than minor for patients, employees, and/or individuals? <ul style="list-style-type: none">• <i>There should be adequate evidence of implementation in similar settings to properly determine the potential for minor adverse effects.</i>	Low risk	Proceed to in-depth review
2	Trust Is there reasonable potential that the AI may negatively impact trust between provider (or health system) and patient(s)?	Low risk	High risk Proceed to in-depth review
3	AI features, equity screen Does the AI algorithm incorporate (or inappropriately exclude) characteristics ¹ that have historically been used to discriminate? <ul style="list-style-type: none">• <i>'YES', if the developer cannot or will not show supporting evidence and clear supporting rationale.</i>	Low risk	Proceed to in-depth review
4	AI output, equity screen Is it possible the AI will lead to decisions that differ across characteristics ¹ that have historically been used to discriminate? <ul style="list-style-type: none">• <i>'YES' if the intended problem to solve is one where disparities exist (e.g., access to healthcare resources, health outcomes, job applications, etc.).</i>	Low risk	Proceed to in-depth review
5	Vulnerability considerations² Does the AI implementation intersect with any of the following healthcare settings/functions/populations: <ul style="list-style-type: none">• Beginning of life (pre, peri, neo-natal)• End of life (hospice, DNR/code status, palliative care, advance directives)• Consent for treatment/research• Capacity for decision making	Low risk	High risk Proceed to in-depth review

FAIR AI

2nd five criteria

1. Decision support – high stakes
2. Sensitive data– privacy issues
3. Output – understandable
4. Monitoring – drift
5. Other

6	Decision support Is the solution intended to provide decision support for any of the following? a. Medical coding b. Medical billing c. Employment or human resources d. Diagnosis, treatment, or prevention of disease	Low risk	Proceed to in-depth review
7	Sensitive data Does the AI interface with data that may require special consideration? a. Recording individuals b. Facial recognition c. Fingerprints d. Genetic data e. Claims/payor data f. Other sensitive data	Low risk	Proceed to in-depth review
8	Output explainability Will it be difficult for the intended user to understand how the AI solution arrived at its output or recommendation?	Low risk	Proceed to in-depth review
9	Ease of monitoring Post implementation, does the AI solution require advanced expertise to adequately monitor for expected and unexpected risks and benefits? <ul style="list-style-type: none">• A 'NO' answer indicates the risks, any adverse effects, and benefits must be able to be routinely tracked by the business owner.	Low risk	Proceed to in-depth review
10	Other concern(s) Does the reviewer have any other significant concerns about the AI not captured within the low-risk screen?	Low risk	High Risk Proceed to in-depth review

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FAIR AI: Risk Categorization

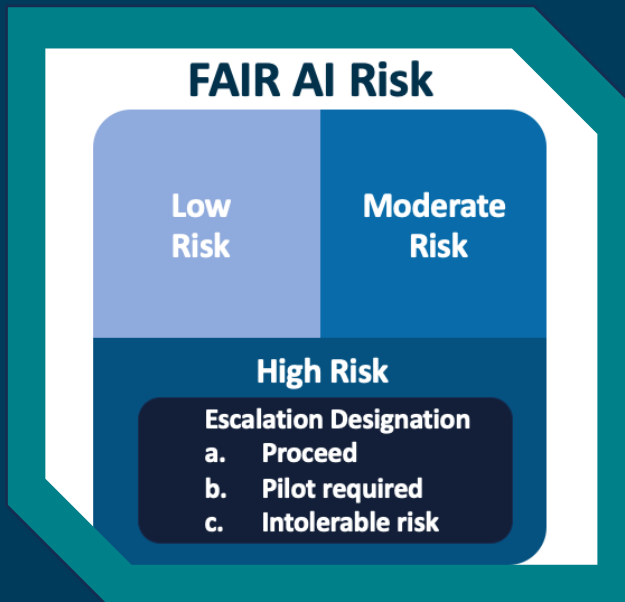
Balance adverse effects, benefits, & workflows.

Low risk:

Potential adverse effects are expected to be **minor**. No ethical, equity, compliance, or regulatory concerns identified.

High risk:

Potential adverse effects are **notable** and could have a significant **negative impact(s)** AND/OR potential ethical, equity, compliance, or regulatory issues are **not adequately addressed**.



Moderate risk:

Potential adverse effects are **not minor** but are adequately addressed by workflows; AND/OR potential ethical, equity, compliance, or regulatory issues are **appropriately mitigated**.

Escalation:

All high-risk solutions are escalated for multidisciplinary review and a **final designation** by the AI Governance Committee.

3

FAIR AI: Safe AI Plan

Vigilance for changing risk

Attestations at regular intervals

- ✓ Use case unchanged
- ✓ Data inputs & workflows unchanged
- ✓ Benefits & risks are as expected

Solution-specific risk monitoring

- ✓ For each risk identified during review
- ✓ Metrics, approach, & monitoring frequency

Transparency for high-risk solutions

- ✓ Education of end users
- ✓ AI Model Card

Advocate Health AI Model Card

AI Solution Name

- Advocate Health Inventory ID
- Developer
- Advocate Health business owner
- Alternate contact for issues if applicable
- Model type

Summary

Risk category

- Initial review date
- Intended use
- Directions for interpretation of AI solution output
- Performance
- Known limitations
- Potential risks
- FDA approval, if applicable (include type)