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OREGON ACADEMY OF
FAMILY PHYSICIANS

MAKING HEALTH PRIMARY

**IF WE DON'T LEAD,
OTHERS WILL:
AI AGENTS AND THE FUTURE
OF FAMILY MEDICINE**

DISCLOSURES

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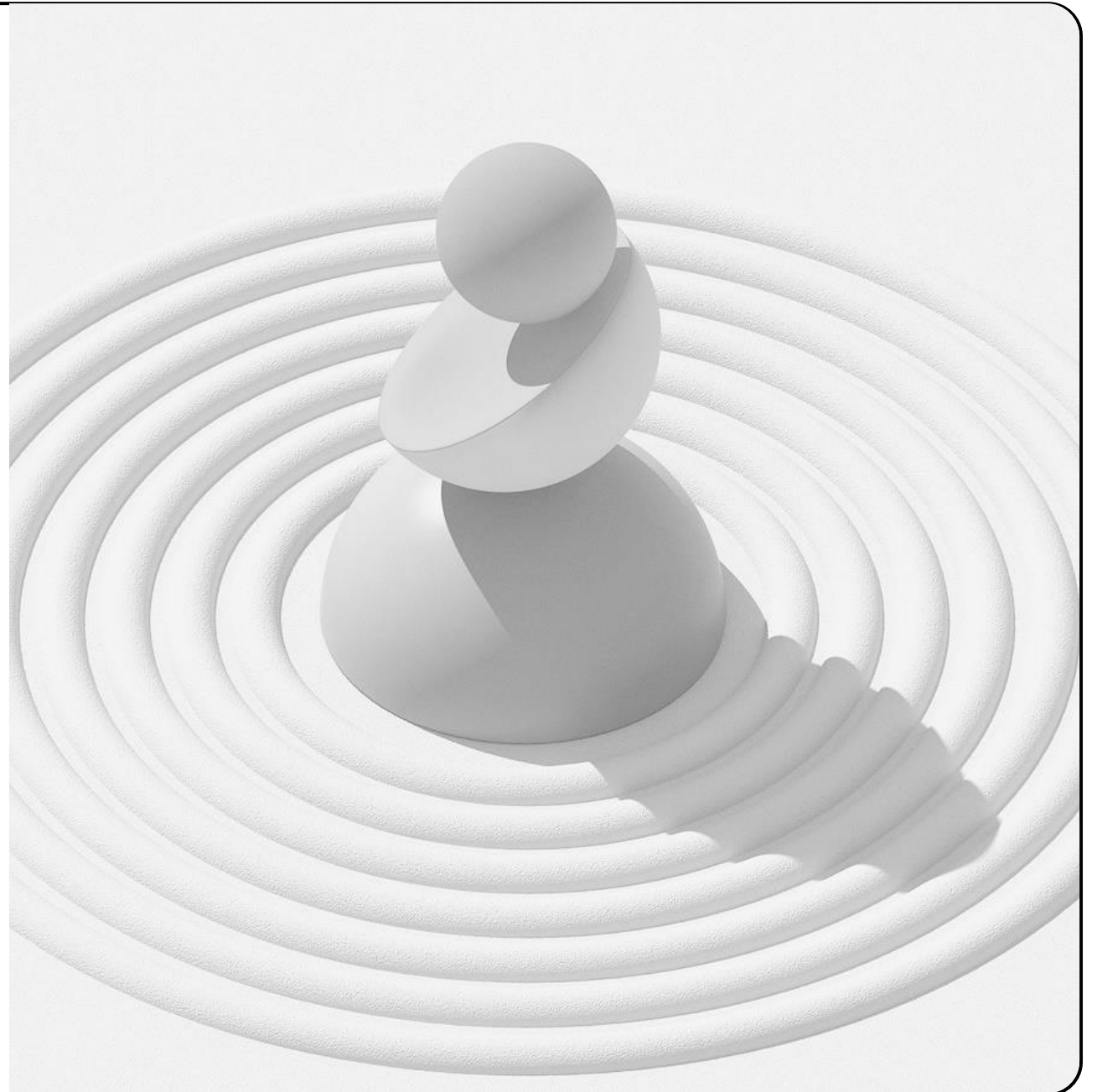
Executive Director

City of Tigard

City Councilor

OBJECTIVES

- Define AI and ML. and describe how AI Agents differ from traditional digital tools and early generation AI-tools.
- Evaluate the opportunities and risks of integrating AI agents into primary care workflows.
- Apply a practical framework for leading AI adoption in family medicine.
- Review the importance of family medicine clinicians helping frame AI implementation in clinical settings.



A BRIEF
CRASH COURSE ON
ARTIFICIAL
INTELLIGENCE
(GIVE ME 5 MIN TO FLY THROUGH)





THE LANGUAGE OF AI

Often used interchangeably, "big data," "algorithms," "machine learning" and "artificial intelligence" are actually different - but closely related - concepts. Here's a simple way to explain each:

BIG DATA

Extremely large datasets (both long/many cases and wide/many variables per case) which, thanks to powerful computers, allow for the identification of subtle patterns, trends and associations.



ALGORITHMS

A set of steps that a computer can take to accomplish a goal. Algorithms underlie all forms of Artificial Intelligence.



MACHINE LEARNING

Algorithms that can identify patterns in data and then generalize those patterns to make predictions or judgments. Machine learning algorithms underlie many ANI applications.



ARTIFICIAL NARROW INTELLIGENCE (WEAK AI)

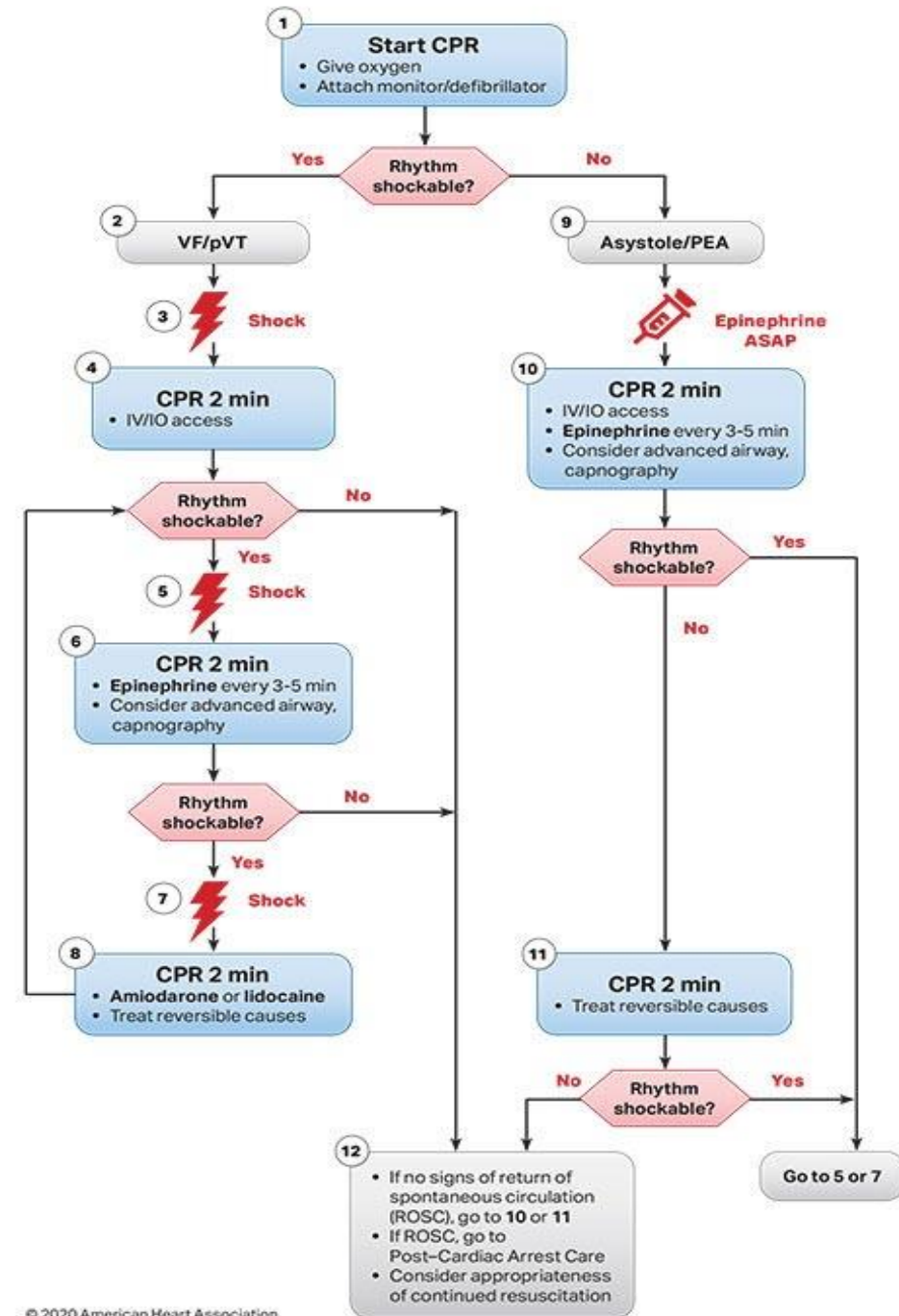
Algorithms that can perform narrowly defined tasks such as recommending movies, understanding natural language, or driving a car.



ARTIFICIAL GENERAL INTELLIGENCE (STRONG AI)

A hypothetical technology that would be the equivalent of a human intelligence in terms of its flexibility and capability of performing and learning a vast range of tasks.

Adult Cardiac Arrest Algorithm (VF/pVT/Asystole/PEA)



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If PETCO₂ is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

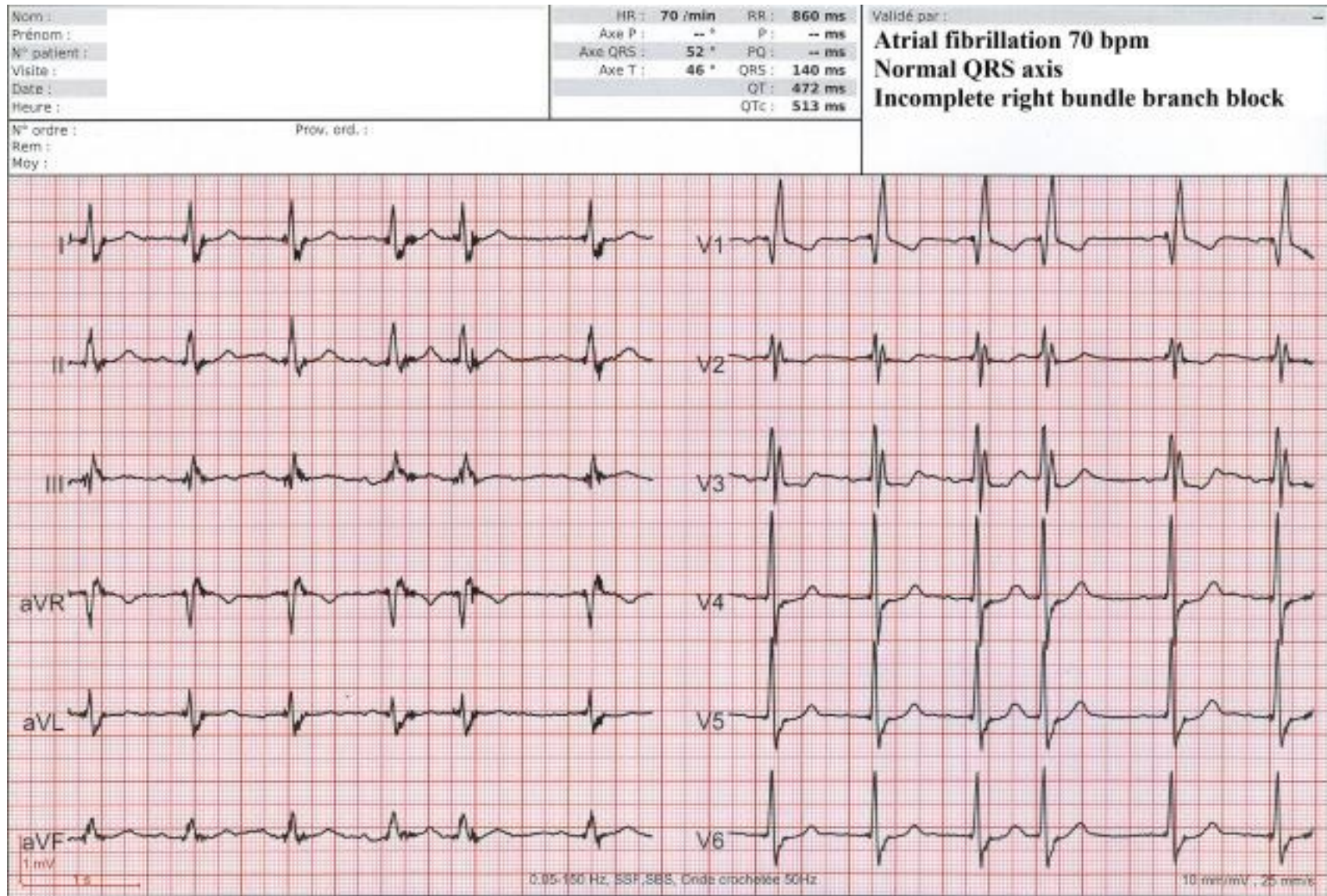
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary



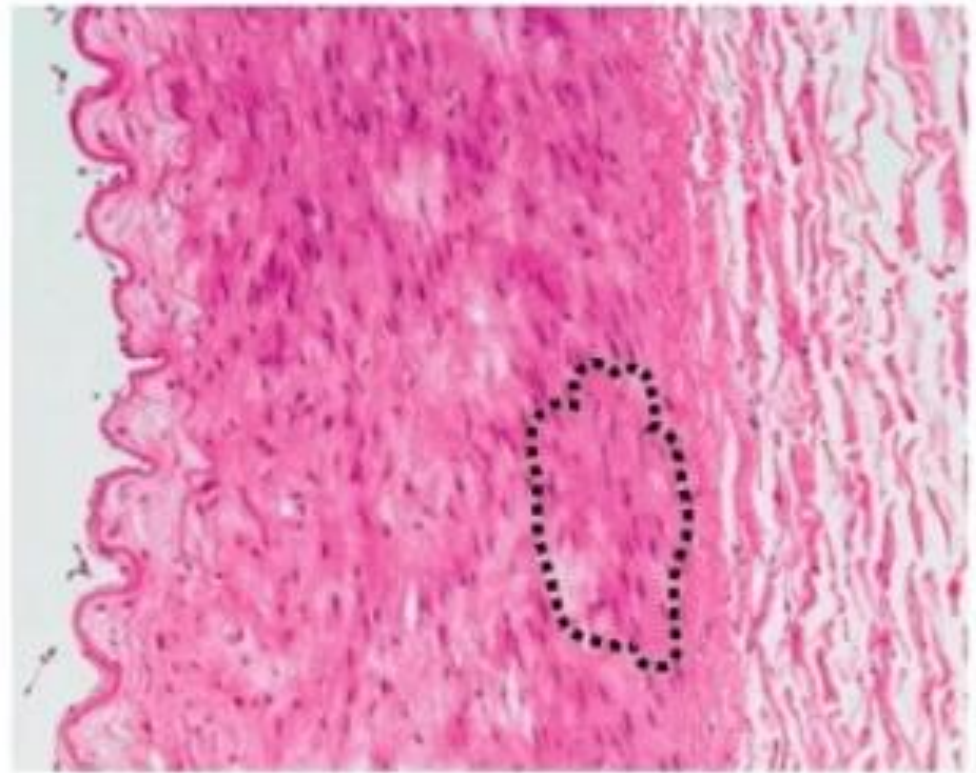
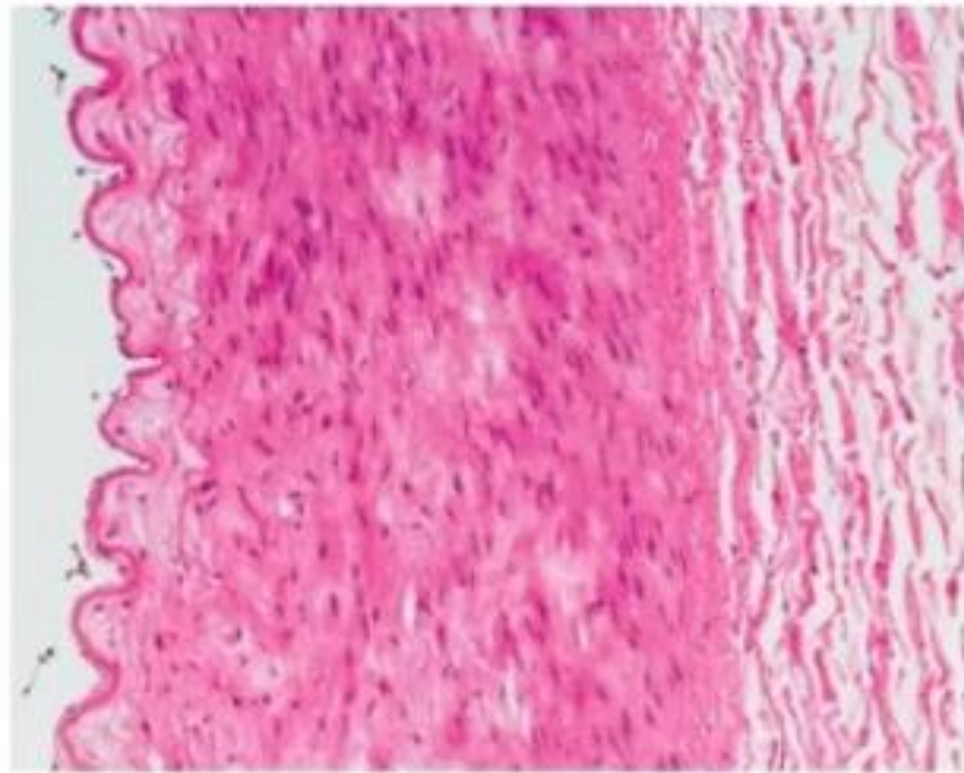
ARTIFICIAL INTELLIGENCE

“[The automation of] activities that we associate with human thinking, activities such as decision making, problem solving, learning”

- Bellman, 1978



Finding A means you have Diagnosis B
 If you see Finding A on the EKG, you likely have Diagnosis B



Finding A means you have Diagnosis B
If you see Finding A on the slide, you likely have Diagnosis B

STRUCTURED VS UNSTRUCTURED DATA

Sex	Age	SBP	DBP	HR	O2	Temp	Sepsis?
M	22	122	72	58	99%	98.8F	N

Patient X is a 22 y/o male presenting today feeling 'sick' for three days. He has a BP of 122/72, HR 58 bpm, and 99% O2 sat. He is currently afebrile and is presenting to clinic to discuss.

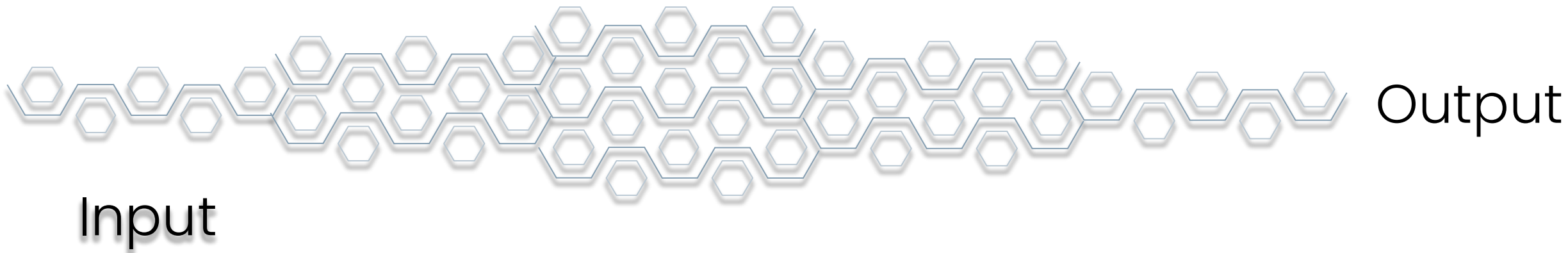
MACHINE LEARNING: TRAINING DATA

Sex	Age	SBP	DBP	HR	O2	Temp	Sepsis?
M	22	122	72	58	99%	98.8F	N
M	62	134	91	78	98%	99F	N
F	55	145	76	66	98%	99.1F	N
M	53	164	88	74	96%	98.9F	N
F	64	100	65	86	98%	100.4F	Y
F	58	92	47	113	85%	101.2F	Y
M	65	143	97	101	95%	101.8F	Y

MACHINE LEARNING

Sex	Age	SBP	DBP	HR	O2	Temp	Sepsis?
M	22	122	72	58	99%	98.8F	N
M	62	134	91	78	98%	99F	N
F	55	145	76	66	98%	99.1F	N
M	53	164	88	74	96%	98.9F	N
F	64	100	65	86	98%	100.4F	Y
F	58	92	47	113	85%	101.2F	Y
M	65	143	97	101	95%	101.8F	Y

DEEP LEARNING





THE AGE OF ARTIFICIAL INTELLIGENCE TOOLS

Poll: How are you using AI in your practice?



AGE OF THE AI AGENT

| (no longer just a tool)

What is an AI Agent?

Software that perceives its environment,
reasons through complex goals,
and takes multi-step actions
using external tools to achieve objectives
with minimal human supervision.

What is an AI Agent?

An AI Agent has three core functions:

1. Perception (Input)
2. Reasoning (Thinking)
3. Action (Output)

OPPORTUNITIES FOR FAMILY MEDICINE

OPPORTUNITIES

Burnout Reduction

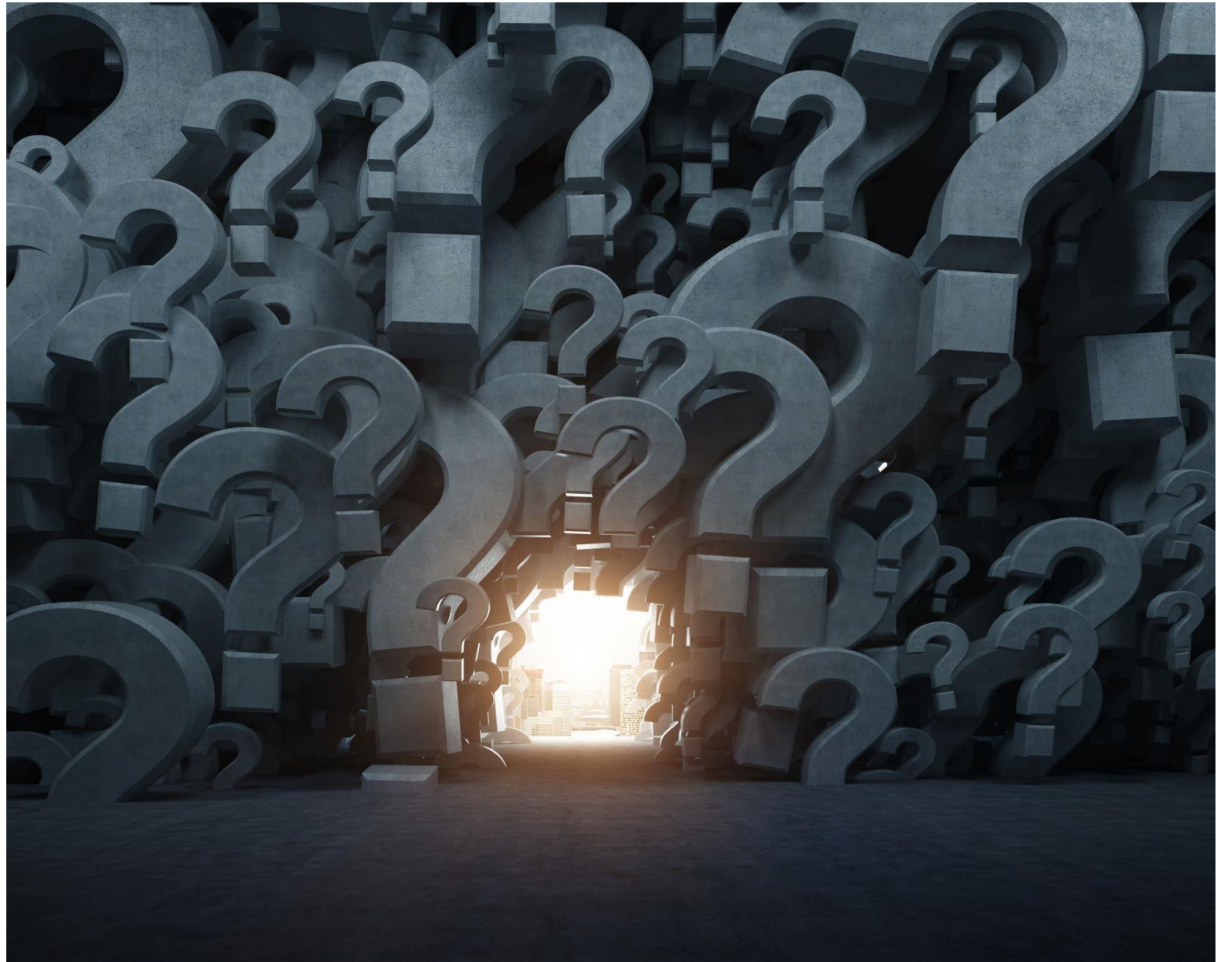
Access Expansion

Population Health

Equity Potential



WHAT
CAN GO
WRONG?



RISK OF BIAS

LET'S USE AI TO FIND A CEO!



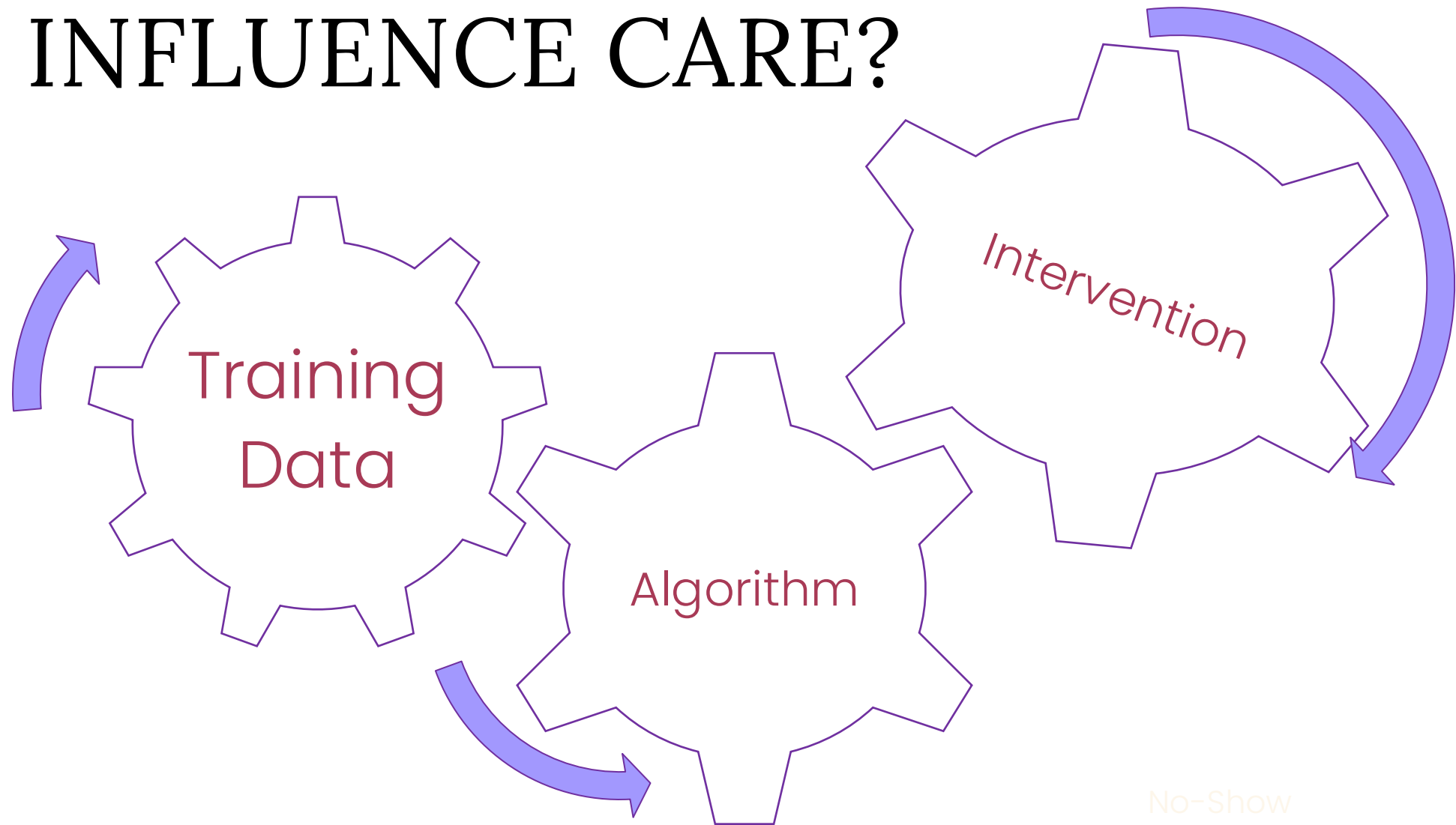


Judy Faulkner



Kenneth Lay

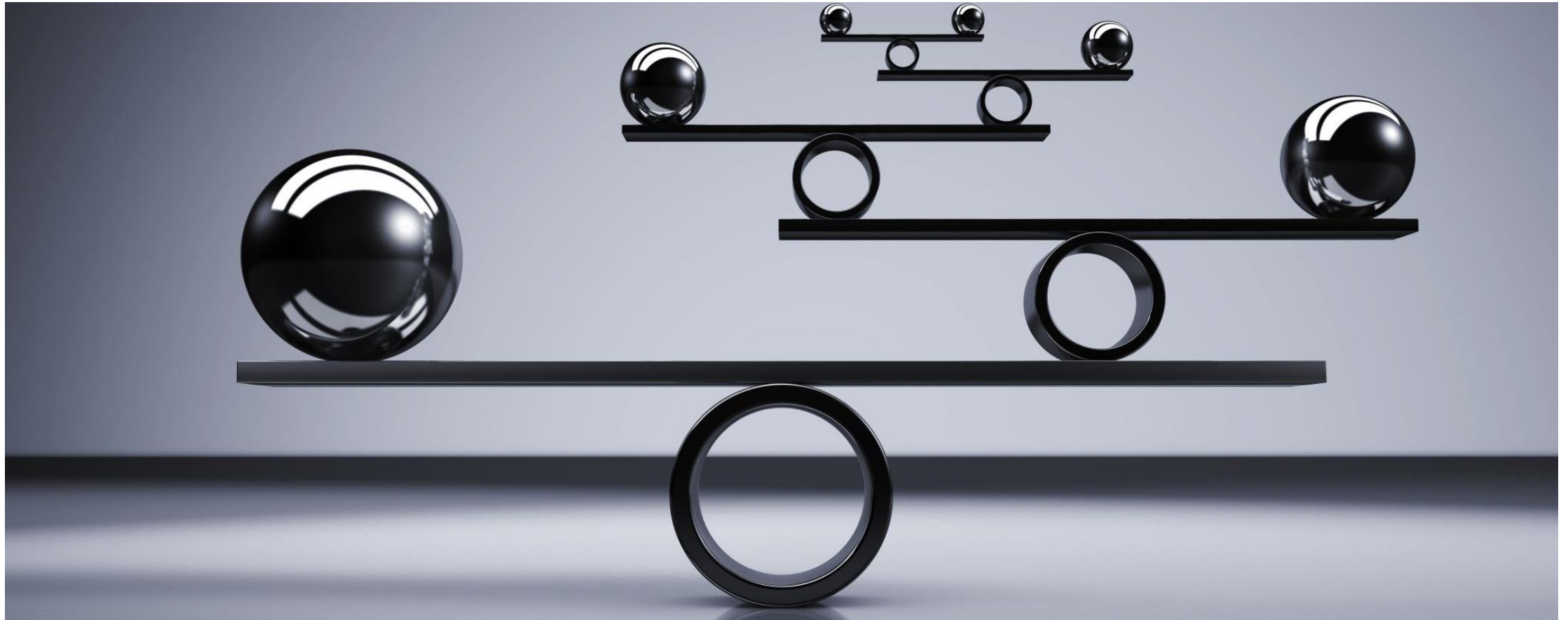
WHERE CAN BIAS INFLUENCE CARE?



No-Show

LEADING THE CHANGE: WHAT FAMILY PHYSICIANS SHOULD DO NOW

The world is shifting and those who adapt and innovate will be the ones to lead the way.



DIFFERENT LEVELS OF ACTION

- If physicians don't shape this, industry will

THANK YOU

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Forbes
Brief Hx of AI

IBM

History of AI

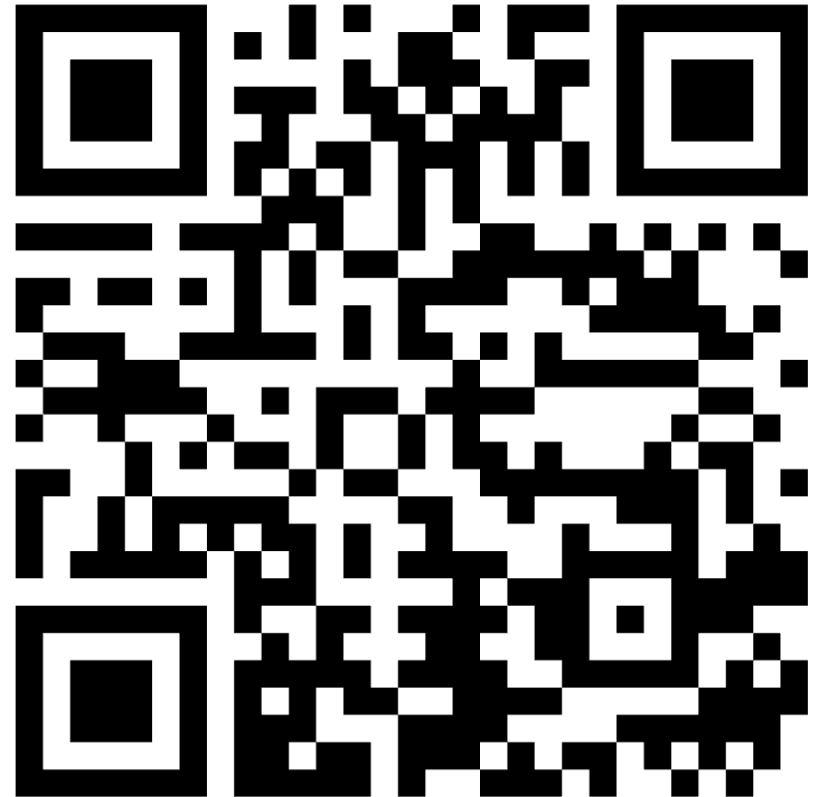




Dr William Hersch

Trustworthy AI in Biomedicine
and Health Lecture

AI Scribe Free Trial





World Health Organization
“Harnessing AI For Health”

AAFP AI in Family Medicine
Additional CME

