How AI is the future of healthcare and how to harness it

Texas Department of State Health Services (DSHS)
Healthcare Safety Conference

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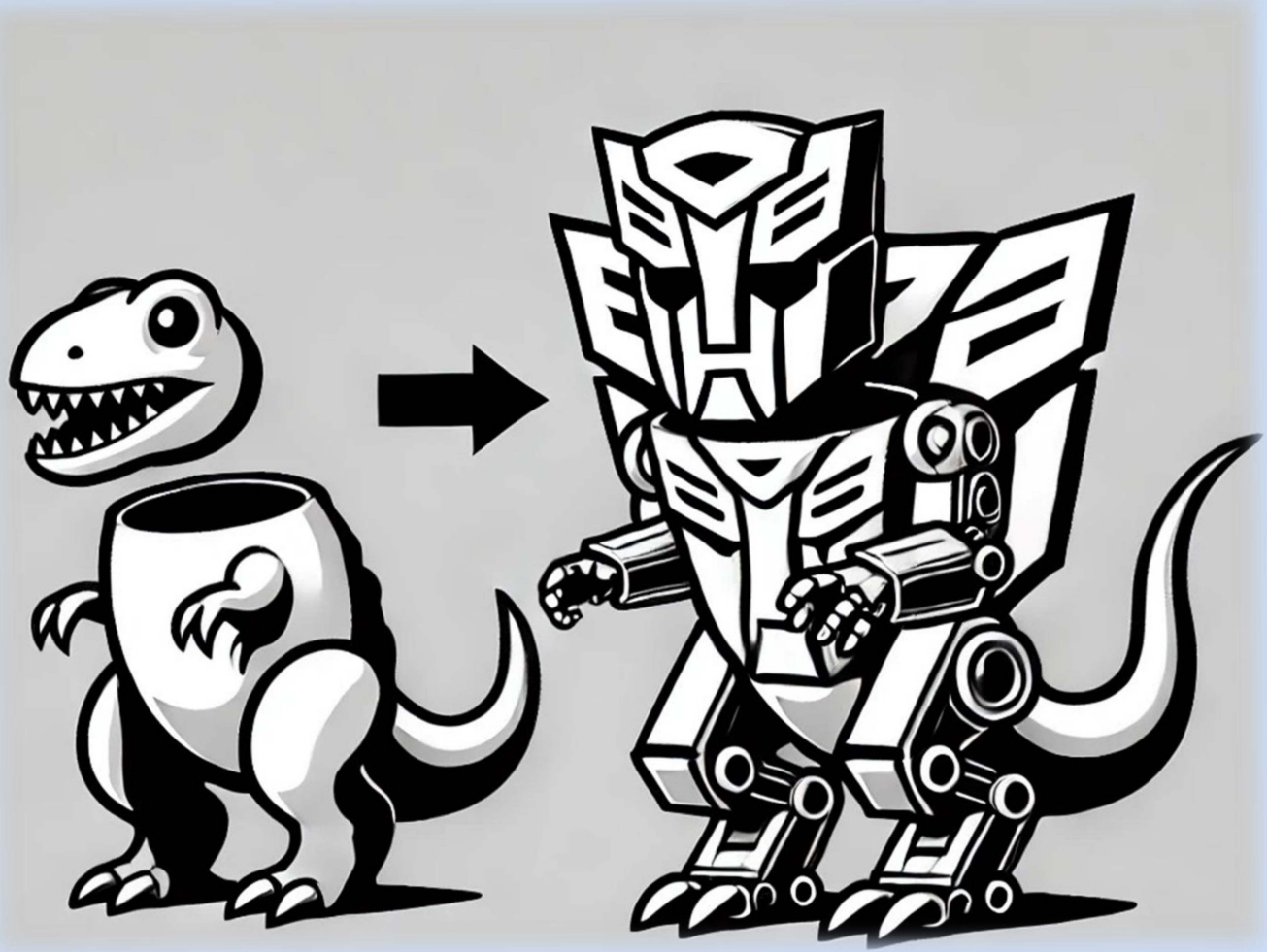
Objectives

- Understand what AI is and its application in healthcare
- Describe ways new technologies can improve healthcare for safety, prevention, and equity
- Understand the potential dangers and pitfalls of these health technologies

What even ***is*** AI?

What even *is* AI?

AI as we commonly know it



THEN

Clunky EMR
Disjointed Systems
Manual data entry
If/Then logic

NOW

Endless inputs
Infinite processing power
Complex “neural networks”

What does AI look like for healthcare?

BIG DATA

Predictive Analytics
Large Language Models
Diagnostics

CLINICAL DECISION SUPPORT

“Smart” suggestions
Collating inputs

PATIENT-GENERATED DATA

Wearables
Routine technology

AMBIENT TECHNOLOGY

Monitoring
Smart Rooms

VR / AR / Simulation

Training
Education

PRECISION MED

Genomic-specific interventions

Big Data

	Example	Impact
Analytics	OpenAI: Epic (Analytics) Google Cloud:HCA	Predictive, large analytics
LLM / Chat	ChatGPT IBM Watson Google DeepMind OpenAI:Epic (InBasket)	Clinician resource Equalize patient education
Diagnostics	Viz.AI (Radiology)	Faster diagnostics Higher accuracy

CLINICAL DECISION SUPPORT

Integrating multiple inputs to actually trigger support for clinicians

Knowledge

Latest studies

Clinical data

EMRs

Pharmacy

Social Determinants

Patient-generated

Wearables

Survey

Daily tech footprint

PATIENT-GENERATED DATA

01.

Access

Rural medicine

Convenience

02.

Wearables

Event notification

Prediction

03.

Home Monitoring

Booths

Home monitoring

AMBIENT TECHNOLOGY

EFFICIENCY

Documentation

Scribing

Chart Review

PATIENT EXPERIENCE

Smart Rooms

Virtual Assistants

SAFETY

Event prediction

Monitoring

AUGMENTED AND VIRTUAL REALITY

CLINICIAN

Surgical planning
Simulation training
Cadaver lab

PATIENT

Mental health therapy
Physical therapy
Education

VR Simulation

PRECISION MEDICINE

Gene Testing

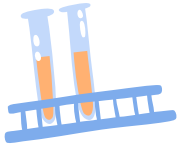
Disease risk & prediction

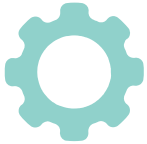
Pharmacogenetics

Targeted therapies

Lifestyle

Biohacking
fitness / nutrition & longevity





the future.

How does this all come together?

Patient Safety

BIG DATA

Prediction of safety events

CLINICAL DECISION SUPPORT

Complex interactions, diagnoses, treatment

PATIENT-GENERATED DATA

Wearables

AMBIENT TECHNOLOGY

Monitoring
Smart Rooms

VR / AR / Simulation

Training
Education

PRECISION MED

Genomic-specific interventions

INFECTION PREVENTION

BIG DATA

Surveillance, reporting, contact tracing, prediction

COMPLIANCE & MONITORING

Hand hygiene
PPE
Room sterilization

TRAINING / SIM

Outbreak simulation

PRECISION MEDICINE

Targeted antibiograms

How do we get there?!

Core Values

EQUITY

Access
Information
decentralization

PATIENT-CENTERED

Autonomy to act
Increased
bedside

DIVERSITY

Access
Bias

AFFORDABILITY

Cost effective
De-institutionalizing

Pitfalls

Privacy

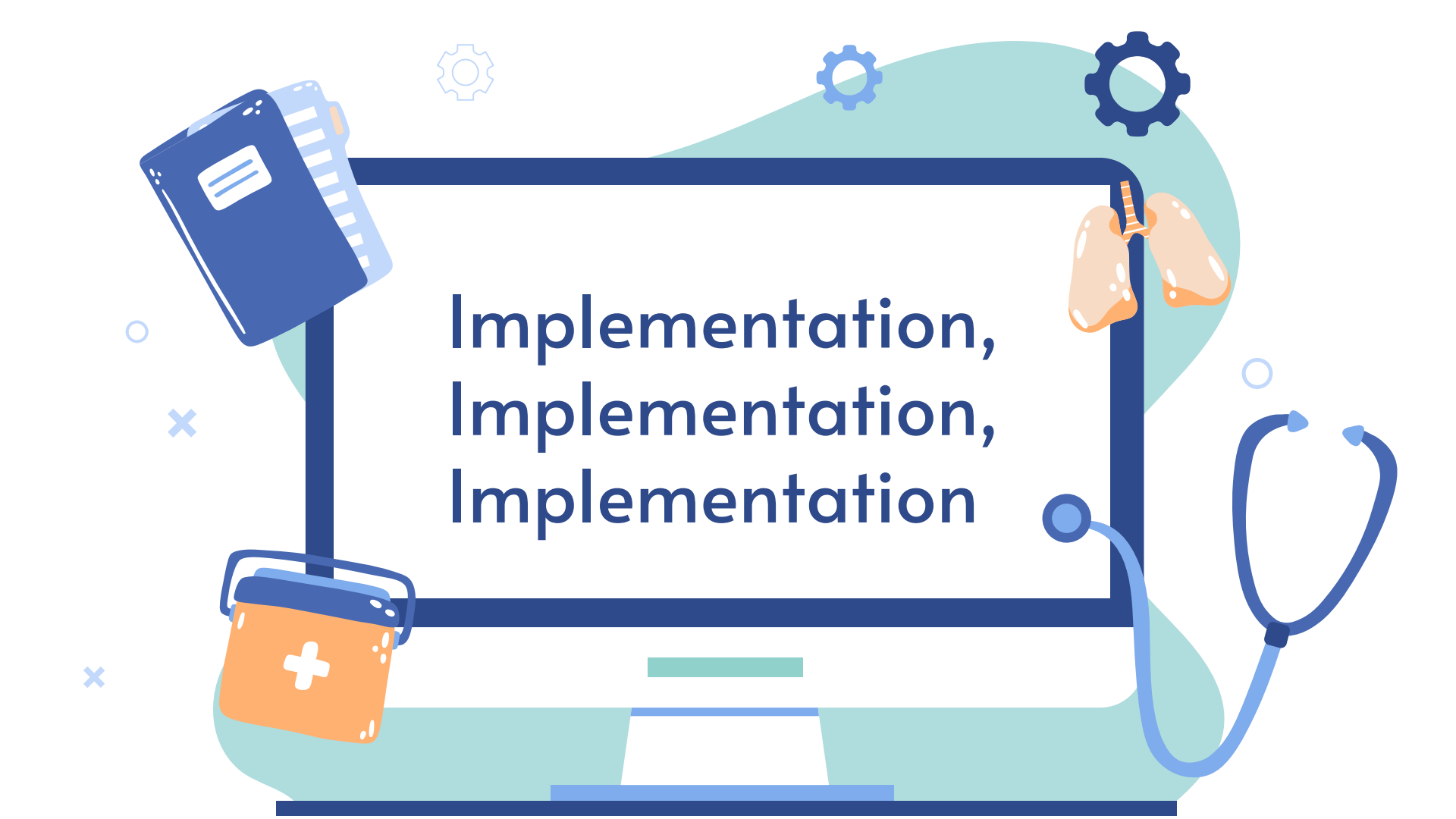
Security, Ownership, HIPAA

Bias/Equity

Don’t repeat history

Auditing

“Black box”


Implementation,
Implementation,
Implementation

Health Technology

Harnessing the power of technology for our patients, providers, and health system.

THANK YOU!

Questions?

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