How AI may impact Clinicians' Delivery of Healthcare

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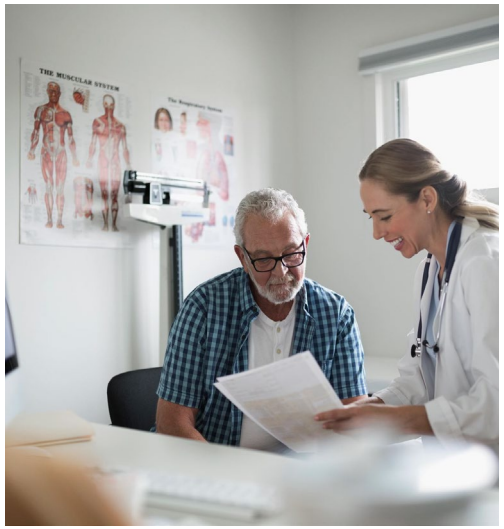
Outline

- General Work of Clinicians (in a Clinical Setting)
  - Technology commonly used by Clinicians
- How AI may impact Clinicians
- Guardrail Considerations

General Work of Clinicians

- **Screen:** What brings you in (symptoms)? Gather health and personal information – medical history, family history, health behaviors that may influence current health situation.
- **Measurements and Tests:** Vital Signs, Blood/Sputum/Urine tests, Radiologic Imaging -X-ray, MRI, CT scans, Sonography, EKGs
- **Diagnose and Plan for Care**
- **Deliver <u>Treatment</u>:** Medication, Procedures, Surgery
- **Evaluate:** Progress, discharge plans, follow-ups



Technology commonly used by Clinicians

- **Screening:** What brings you in (symptoms)? Gather health and personal information – health history, family history, health behaviors that may influence current health situation
- **Measurements and Tests:** Vital Signs, Blood test, Radiologic Imaging - X-ray, MRI, CT scans, Sonography, Cardiac monitors
- **Diagnosis & Care Planning**
- **Deliver Treatment:** Medication, Procedures, Surgery
- **Evaluation:** Progress, discharge plans, follow-ups

Electronic Health Record used to collect, store and retrieve information

Microscopes, X-ray, MRI, CT scans, Sonograms, cardiac monitors used to capture images, sounds, rhythms, physiologic activities that are analyzed.

Procedural equipment, Surgical robots used to guide procedure and deliver treatment – electric shocks, insertion (e.g., stent), removal (e.g., tumor), replace (e.g., transplants) etc.

Mobile device/ applications – remote monitoring, educate, communicate

How AI may Impact Clinicians / Technology Used

- **Electronic Health Record**

  : to promote efficiency and clinician-patient interaction

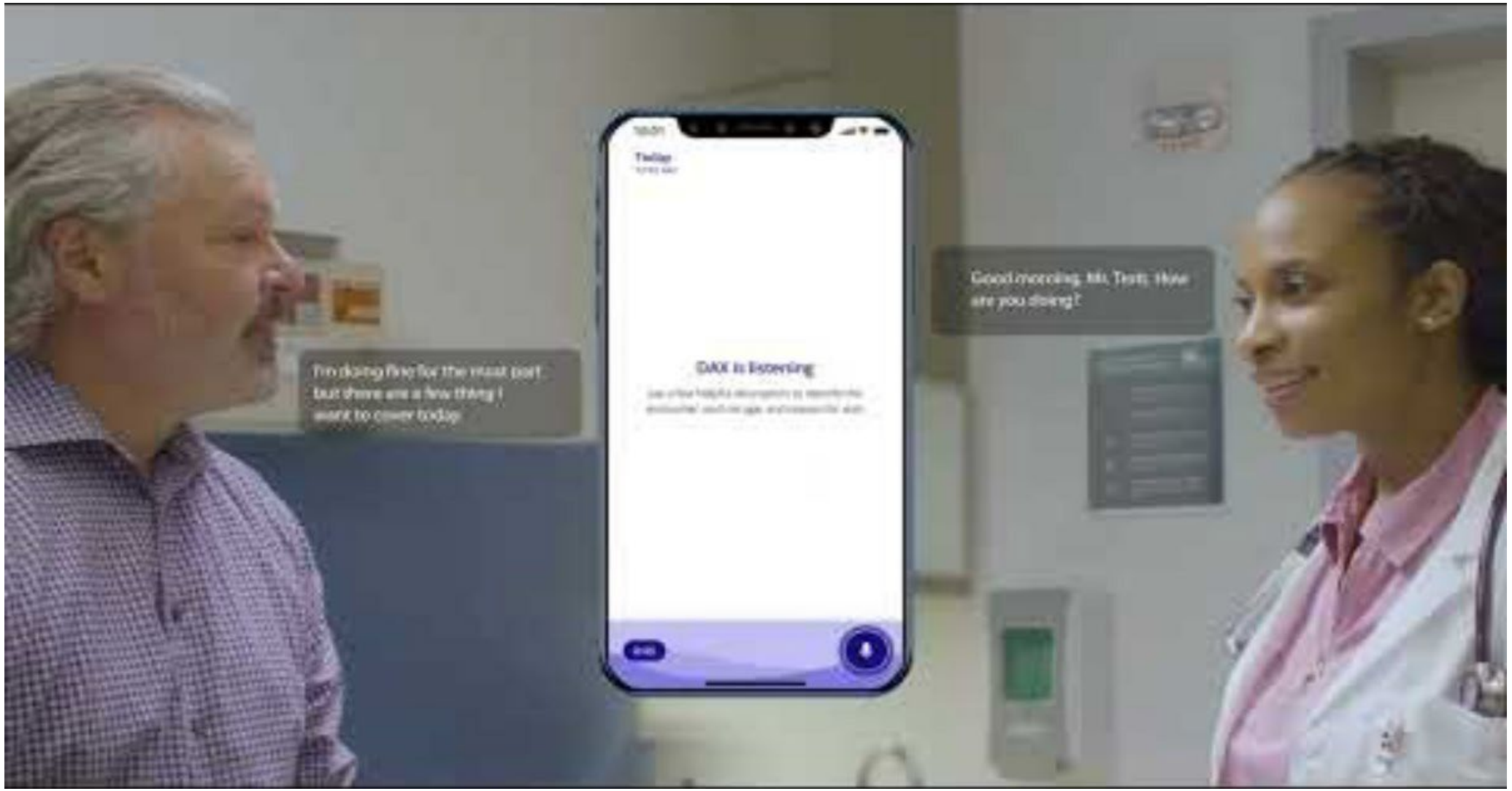
- **Testing and Diagnostic Technologies**

  : for data analysis and subsequent clinical decision support

- **Procedural Equipment**

  : to enhance precision and control for optimal outcomes

Example Use of AI in Screening: DAX Copilot [1:53]



https://www.youtube.com/watch?v=_WvDnvwoXU0

How AI may Impact Clinicians/ Technology used

Electronic Health Record

- Transcribe & Summarize conversation
- Save relevant information to the right fields (e.g., DOB)
- Auto calculate (e.g., DOB to Age, Height and Weight to BMI)
- Prompt or remind clinician to ask questions that may be helpful
- Translate

Example Use of AI in Medical Imaging: Nanox.AI [2:03]

Nanox.AI [2:03]

https://www.youtube.com/watch?v=aa_IjzOV3kM

How AI may Impact Clinicians' / Technology Used

Testing and Diagnostic Technologies

- Flagging abnormalities (e.g., low Hb, high HbA1C, cancerous cells, broken bones, hemorrhage)
- Initial review of images, sounds, rhythms, physiologic activities
- Auto calculate dimensions (e.g., volume)
- Save relevant info to the right fields (e.g., size of tumor)
- List of potential matches/diagnosis (Anemia, DM)
- Draft preliminary report

Example Use of AI in Treatment: da Vinci 5 [3:10]

https://www.youtube.com/watch?v=_WvDnvwoXU0

How AI may Impact Clinicians/ Technology Used

Procedural equipment/ Surgical robotic systems

- Micro-manipulation
- Real-time feedback with intra-procedural information (e.g., identify anatomical points, determine tissue vs tumor)
  - Continuous monitoring devices/sensors and advanced image analysis can detect and communicate concerns to clinicians
  - Camera may autonomously change camera view/zoom to optimize visualization

Guardrail Considerations

Potential Benefits	Potential Concerns
- Increased Speed and Efficiency - Increased Precision/Accuracy - Increased Patient and Clinician satisfaction related to personalized care	- Malfunction/Accuracy/Validity - Equity/Access to technology - Privacy and security concerns - Learning curve for clinicians and patients

Guardrail Considerations:

- Patients' Informed Consent
  - Increase patients' awareness about the use of AI and their rights (e.g., access, delete, correct data or opt out)
- Verification of AI work by trained clinician
  - Enhance clinician training related to the concerns and ways to address them
- Validation/Continuous improvement of Technology (data/models) & Process (workflow)
  - Establish policies and procedures to address pitfalls and include trained professionals in the loop

THANK YOU