

# Texas Public POLICY FOUNDATION

BETTER TECH FOR TOMORROW



## THE PROMISE AND PERIL OF AI: HEALTHCARE

### INTRODUCTION

Artificial intelligence (AI) is transforming healthcare by advancing research, streamlining operations, and enhancing patient care. AI accelerates drug discovery, personalizes treatments, and reduces administrative burdens. However, challenges like diminished human input, algorithmic errors, and potential biases raise ethical concerns. Balancing AI's innovation with the essential role of human expertise is vital for improving outcomes and ensuring trust in healthcare.

### THE POSITIVE EFFECTS OF AI IN HEALTHCARE

- **Advancing Medical Knowledge**
  - **Drug Discovery:** AI expedites the identification of drug candidates by analyzing vast datasets, predicting molecule behaviors, and designing new compounds. Companies like Exscientia and Iktos use AI to develop treatments for cancer, Alzheimer's, and more, significantly reducing the time and cost of drug discovery.
  - **Protein Synthesis:** AI tools like AlphaFold2 and FrameDiff predict and generate protein structures with remarkable speed and accuracy. This advancement accelerates the creation of effective drugs and vaccines, tackling health challenges faster than traditional methods.
  - **Meta-Analysis:** AI synthesizes data from clinical trials, patient records, and scientific studies, uncovering patterns and correlations that improve medical research and clinical trial design.



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- **Improving Operational Efficiency**

- **Fraud Reduction:** AI helps detect fraudulent claims and practices in healthcare systems. For example, IBM's DataProbe saved Iowa Medicaid \$41.5 million by identifying duplicative claims and opioid misuse.
- **Reducing Administrative Burden:** AI streamlines documentation by transcribing doctor-patient conversations and automating reporting, freeing physicians to focus on patient care.

- **Enhancing Patient Care**

- **Personalized Medicine:** AI analyzes genetics, lifestyle, and medical history to recommend customized treatments, optimizing care for conditions like cancer and heart disease.
- **Medical Imaging:** Tools like CheXNeXt diagnose conditions from X-rays with high accuracy, dramatically reducing analysis time and enabling quicker treatment decisions.

## THE NEGATIVE EFFECTS OF AI IN HEALTHCARE

- **Inaccurate Diagnosis**

- AI systems can misdiagnose conditions due to algorithmic errors, biases in training data, or lack of context, leading to unnecessary and potentially harmful treatments.

- **Over-Reliance on Technology**

- Dependence on AI recommendations can erode the critical thinking skills of healthcare providers. The potential for misdiagnosis highlights the risks of blindly following AI algorithms without human oversight.

- **Ethical and Privacy Concerns**

- The vast amount of patient data required for AI development raises privacy risks. Ethical dilemmas arise when patients are misdiagnosed or when responsibility for errors is unclear.

- **Algorithmic Errors**

- AI systems are prone to errors, such as hallucinations or misprioritization of cases. For example, errors in triaging critical patients can delay urgent care, endangering lives.

## CONCLUSION

Artificial intelligence offers transformative opportunities in healthcare, particularly in accelerating research and discovery. However, its integration must balance innovation with caution. Keeping human experts central to diagnostic and treatment processes ensures the benefits of AI are realized without diminishing the value of human intuition and oversight. By leveraging AI responsibly, the healthcare system can enhance outcomes, advance research, and maintain trust in medical care.

