

Endocrinology 2033 – CDS and AI applications are clinical routine

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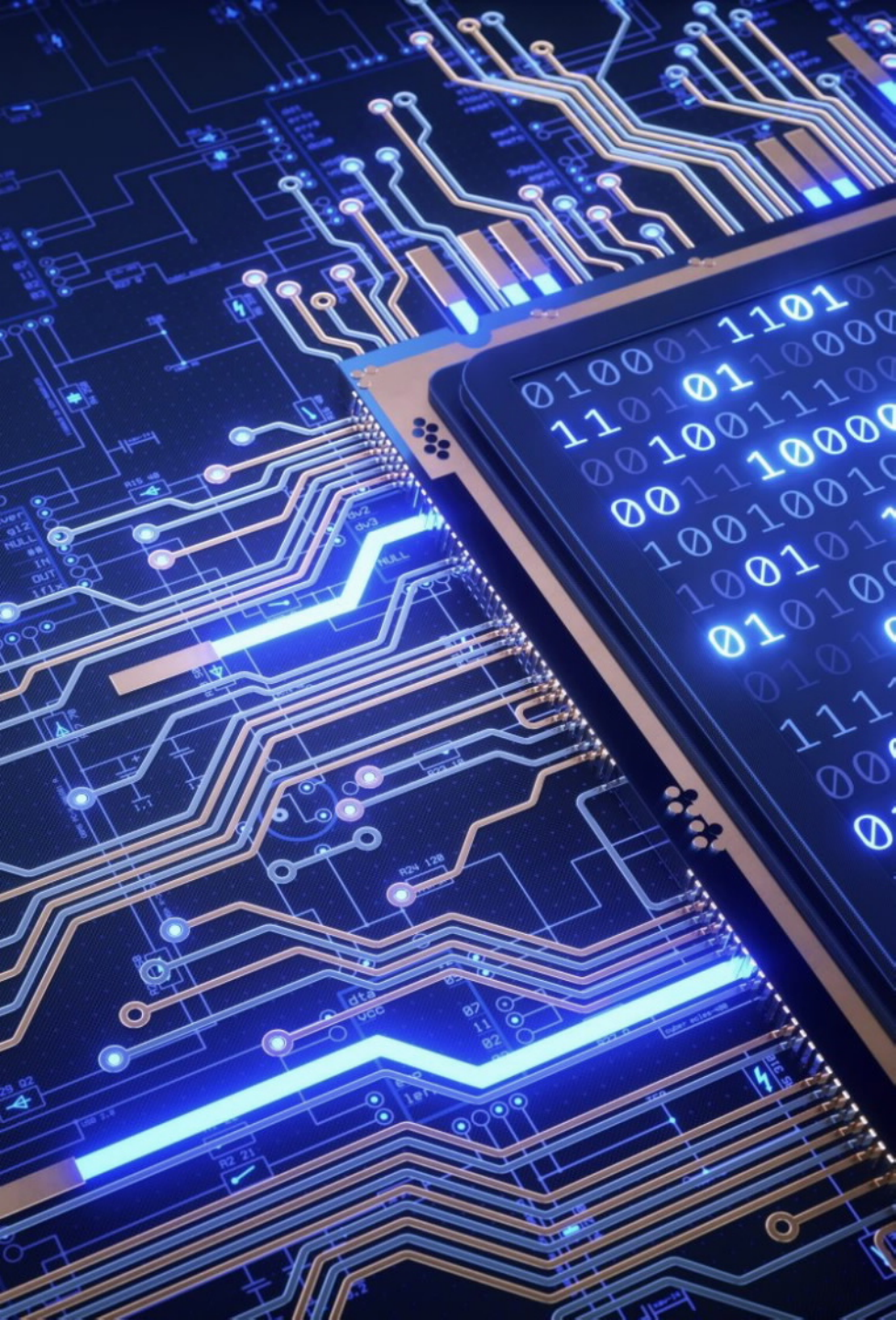
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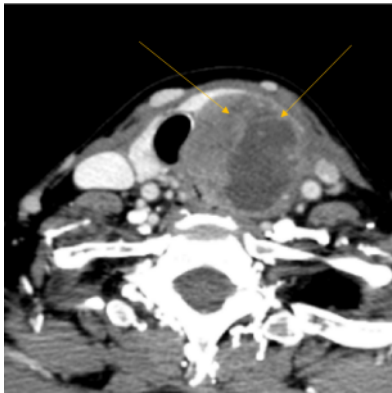
Fortbildungsnachmittag, St. Gallen, 28 September 2023

From insight to impact.

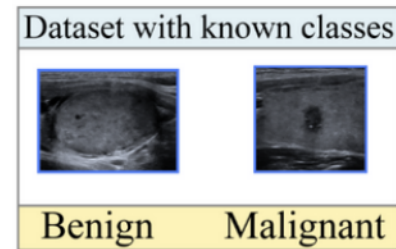


Endocrinology 2033: what if...?

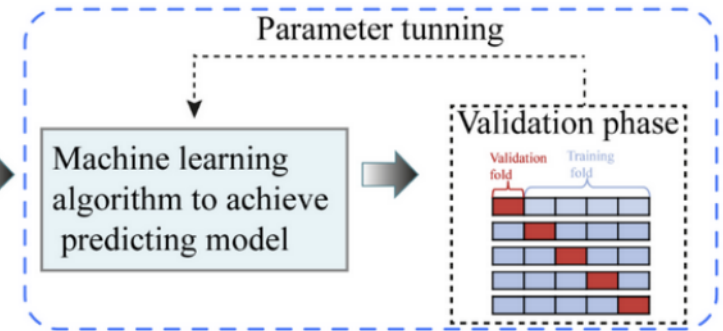
What if images could reveal more than the eye can see?



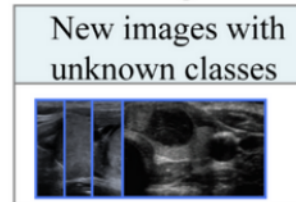
I. Training



Features
Extraction



II. Predicting



Features
Extraction

Best predicting model

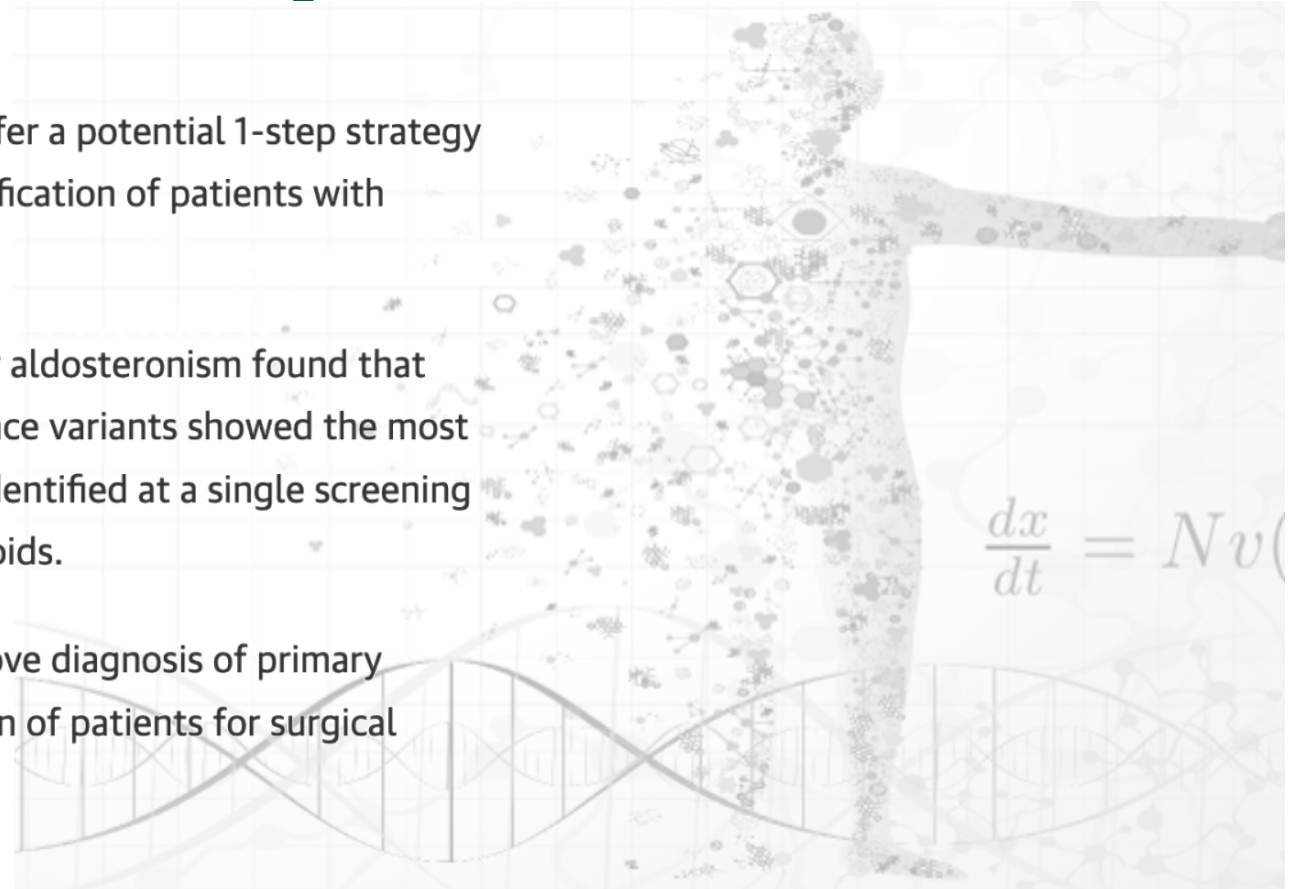
Class assignment:
e.g. Benign / Malignant

What if **complex** disease trajectories could be **molecularly** and **systemically** understood?

Question Does steroid profiling combined with machine learning offer a potential 1-step strategy to facilitate diagnosis and subtype classification for treatment stratification of patients with primary aldosteronism?

Findings This diagnostic study involving patients tested for primary aldosteronism found that those with unilateral adenomas harboring pathogenic *KCNJ5* sequence variants showed the most clinical benefit from surgical intervention and could be effectively identified at a single screening step using machine-learning combinatorial marker profiles of 7 steroids.

Meaning The outlined strategy offers a potential approach to improve diagnosis of primary aldosteronism and facilitate more efficient and effective stratification of patients for surgical intervention.



Physical & Chemical factors

Temperature, pollution, pesticides, food contaminants etc.,



Social factors

Socioeconomic status, stress, Social networks etc.,



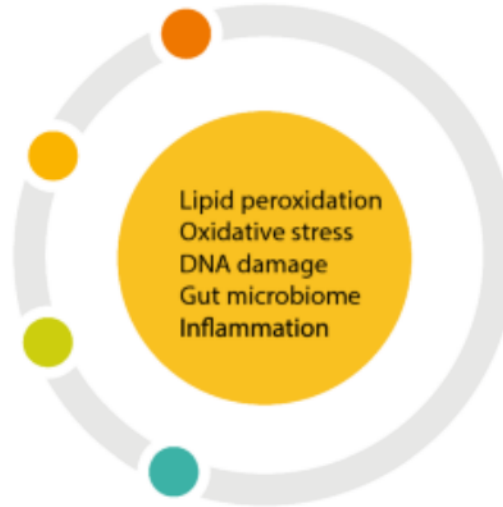
Ecosystem factors

Global warming, dense population, built environment etc.,



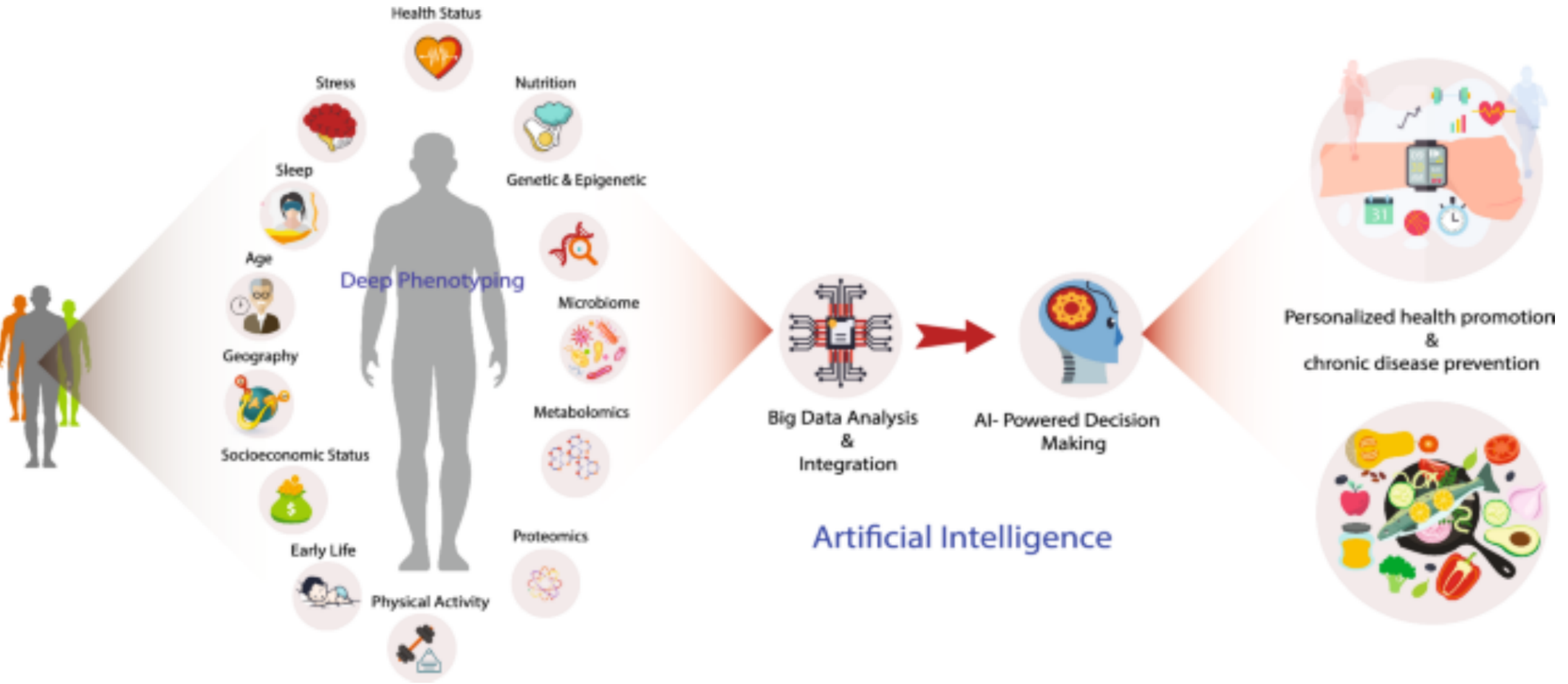
Lifestyle factors

Diet, physical activity, smoking, alcohol use etc.,

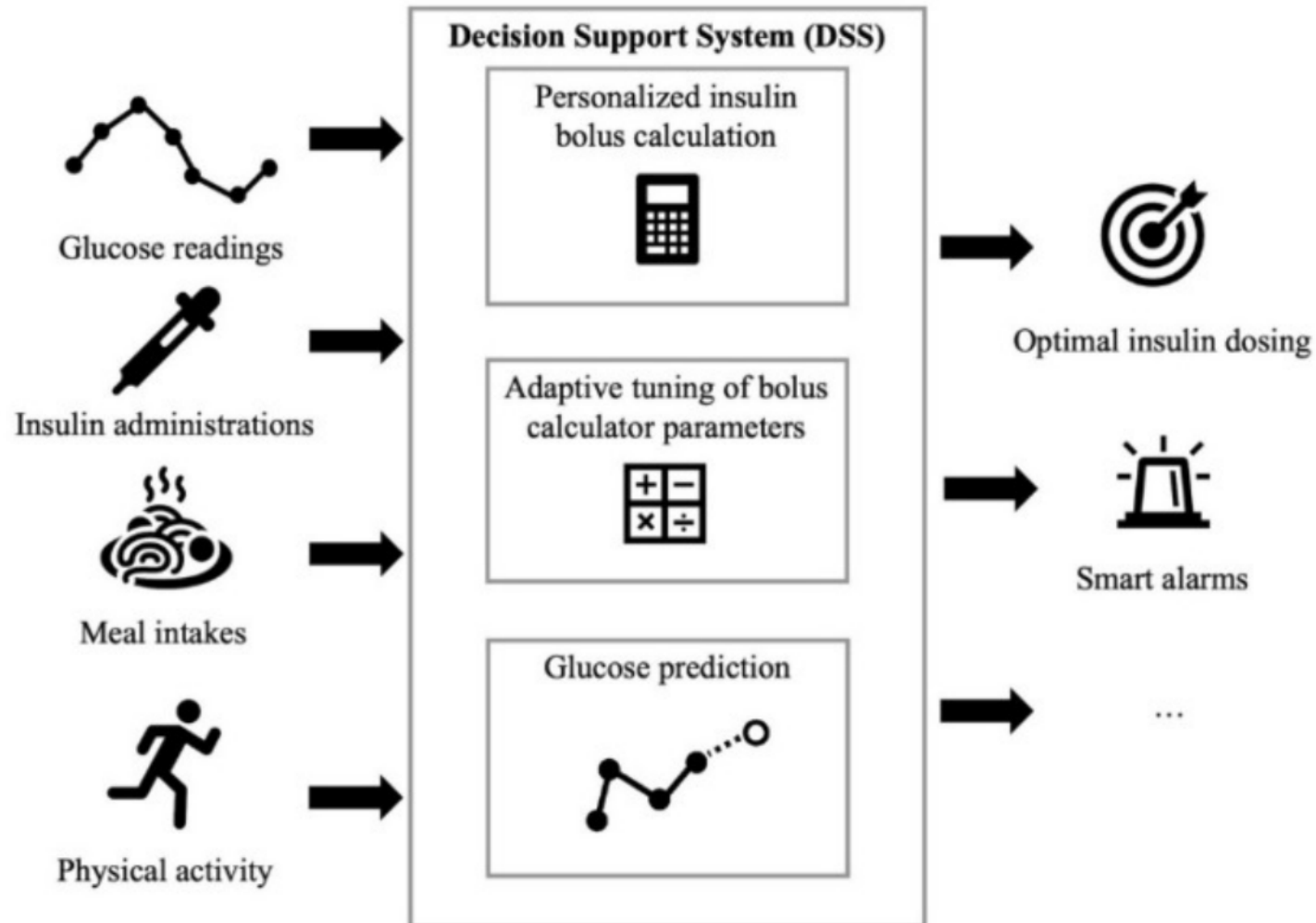


Adverse health outcome and chronic disease risk

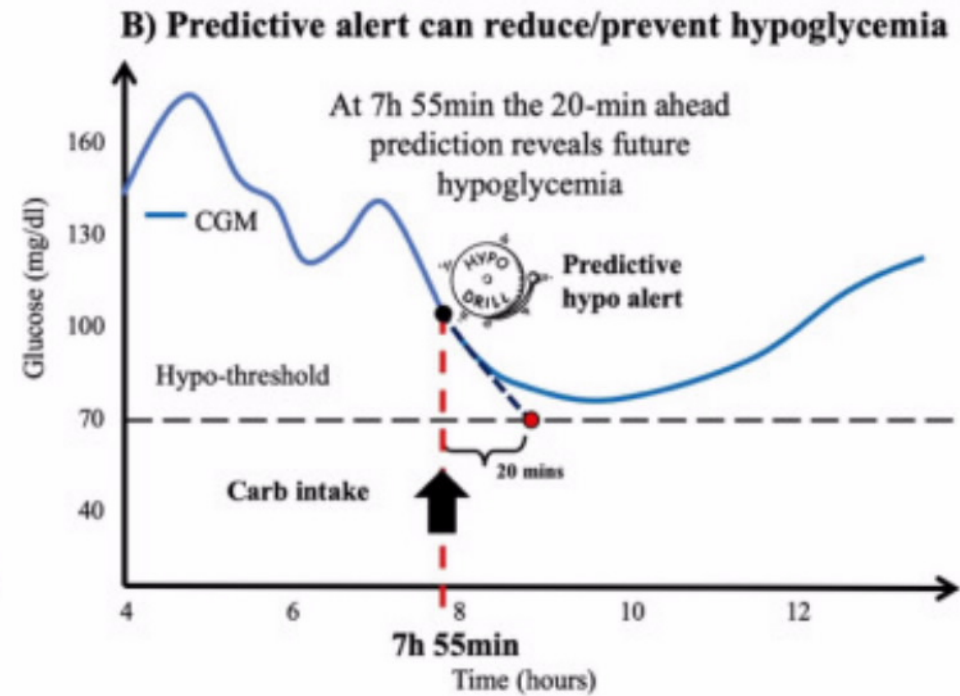
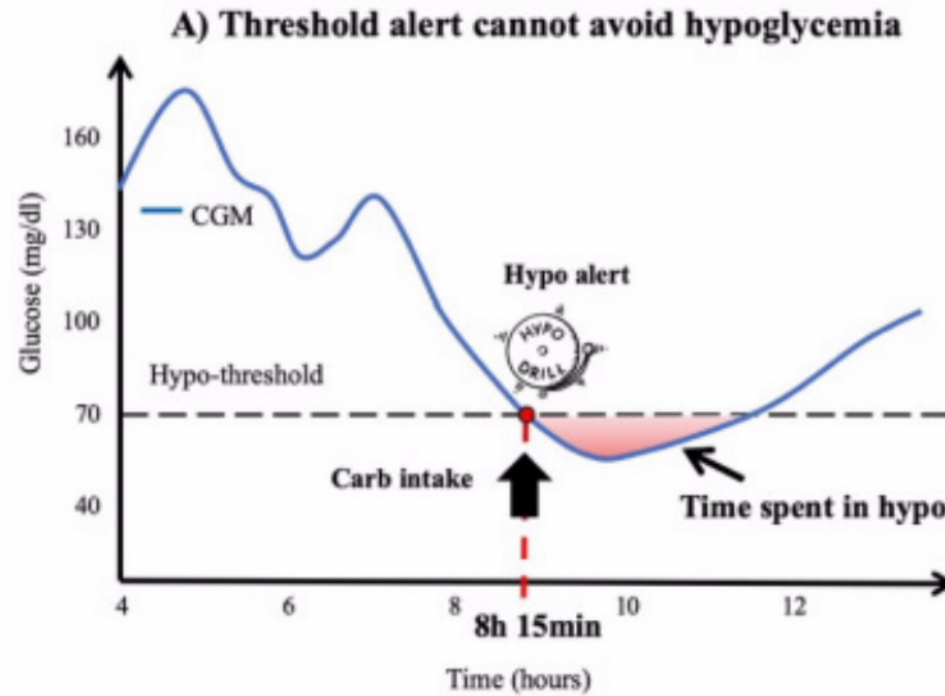




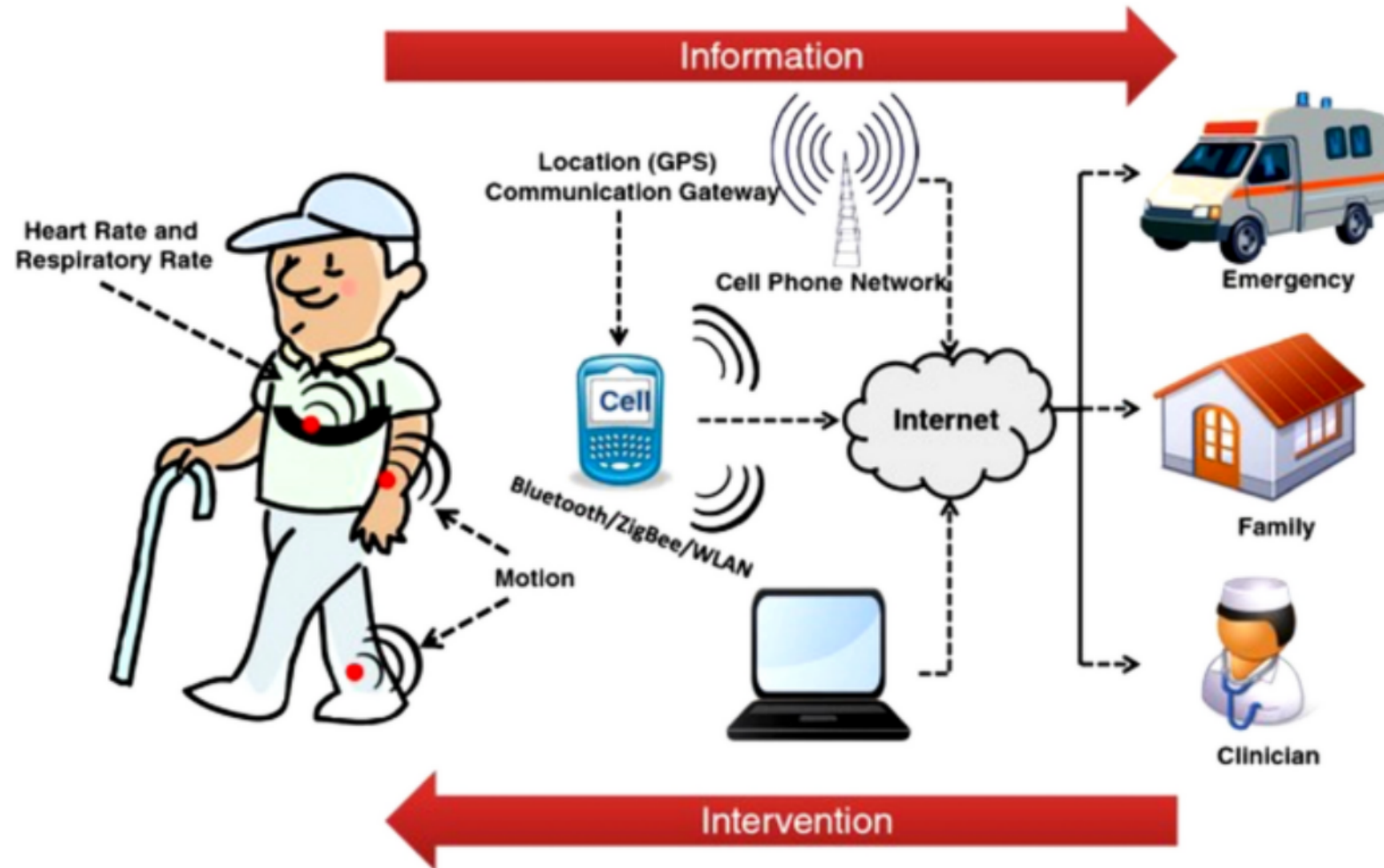
What if treatments could be individually targeted?



What if doses could be continually adjusted?




What if patients could be supported at home?



What if AI could answer medical questions?

Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models

Tiffany H. Kung, Morgan Cheatham, Arielle Medenilla, Czarina Sillos, Lorie De Leon, Camille Elepaño, Maria Madriaga, Rimel Aggabao, Giezel Diaz-Candido, James Maningo, Victor Tseng 

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Article	Authors	Metrics	Comments	Media Coverage
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Abstract

- Author summary
- Introduction
- Methods
- Results
- Discussion

Abstract

We evaluated the performance of a large language model called ChatGPT on the United States Medical Licensing Exam (USMLE), which consists of three exams: Step 1, Step 2CK, and Step 3. ChatGPT performed at or near the passing threshold for all three exams without any specialized training or reinforcement. Additionally, ChatGPT demonstrated a high level of concordance and insight in its explanations. These results suggest that large language models may have the potential to assist with medical education, and potentially, clinical decision-making.

What if **hospitals** could have ambient intelligence?

- Monitoring patients activities
- Checking vitals
- Storing information securely



What if **clinicians** no longer needed to **capture data**?



<https://www.medicalrepublic.com.au/amazon-launches-ai-based-medical-scribe-service/95964>

April 28, 2023

Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum

John W. Ayers, PhD, MA^{1,2}; Adam Poliak, PhD³; Mark Dredze, PhD⁴; [et al](#)

[» Author Affiliations](#)

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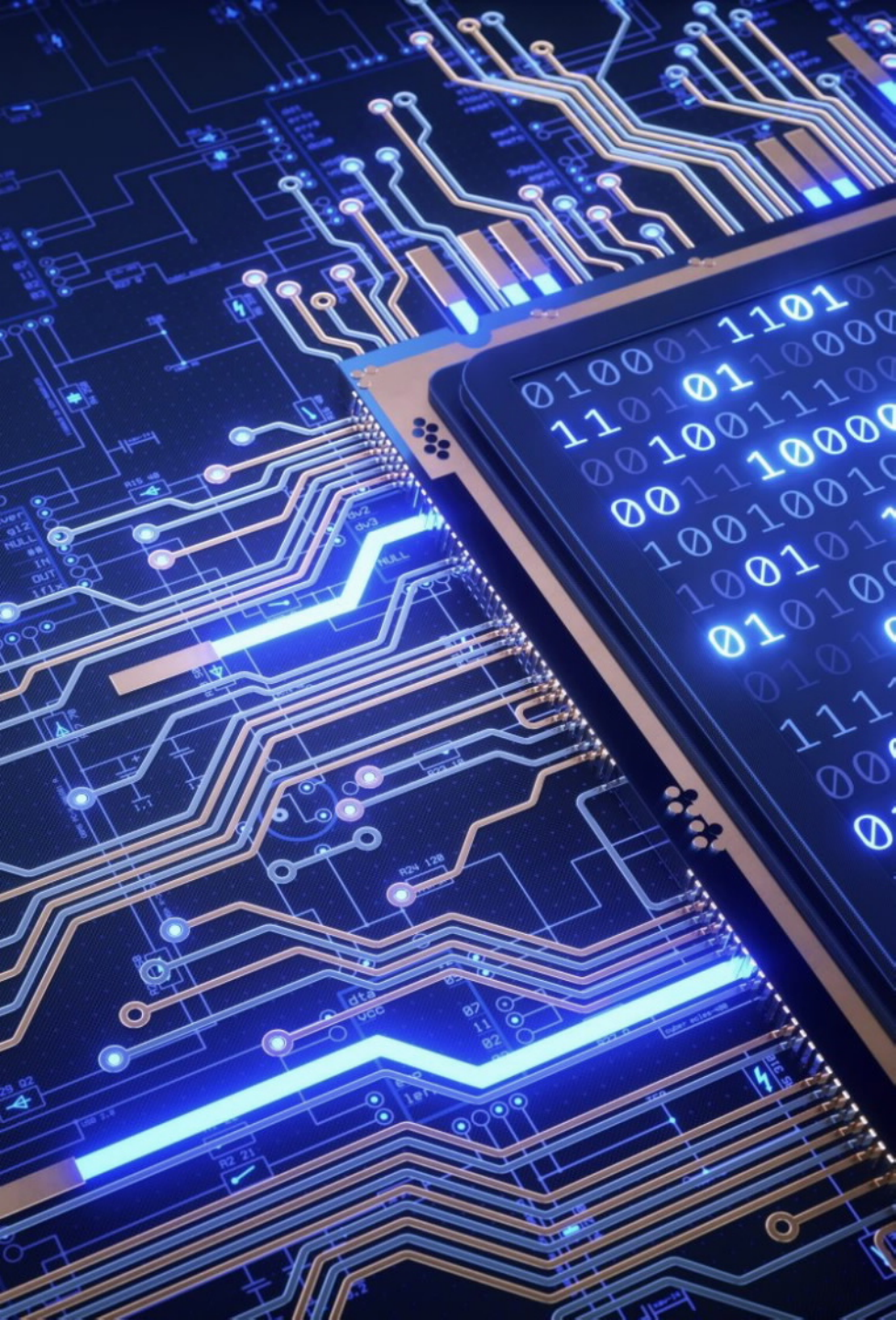
Key Points

Question Can an artificial intelligence chatbot assistant, provide responses to patient questions that are of comparable quality and empathy to those written by physicians?

Findings In this cross-sectional study of 195 randomly drawn patient questions from a social media forum, a team of licensed health care professionals compared physician's and chatbot's responses to patient's questions asked publicly on a public social media forum. The chatbot responses were preferred over physician responses and rated significantly higher for both quality and empathy.

Meaning These results suggest that artificial intelligence assistants may be able to aid in drafting responses to patient questions.

What if
AI could
show
empathy?



Endocrinology
2033:
what if CDS and AI
are (already,
almost)
clinical routine?

Thank you!

Prof. Dr. Janna
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Medical Knowledge and Decision Support

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