AI and the future of personalized healthcare
Learnings & Implications
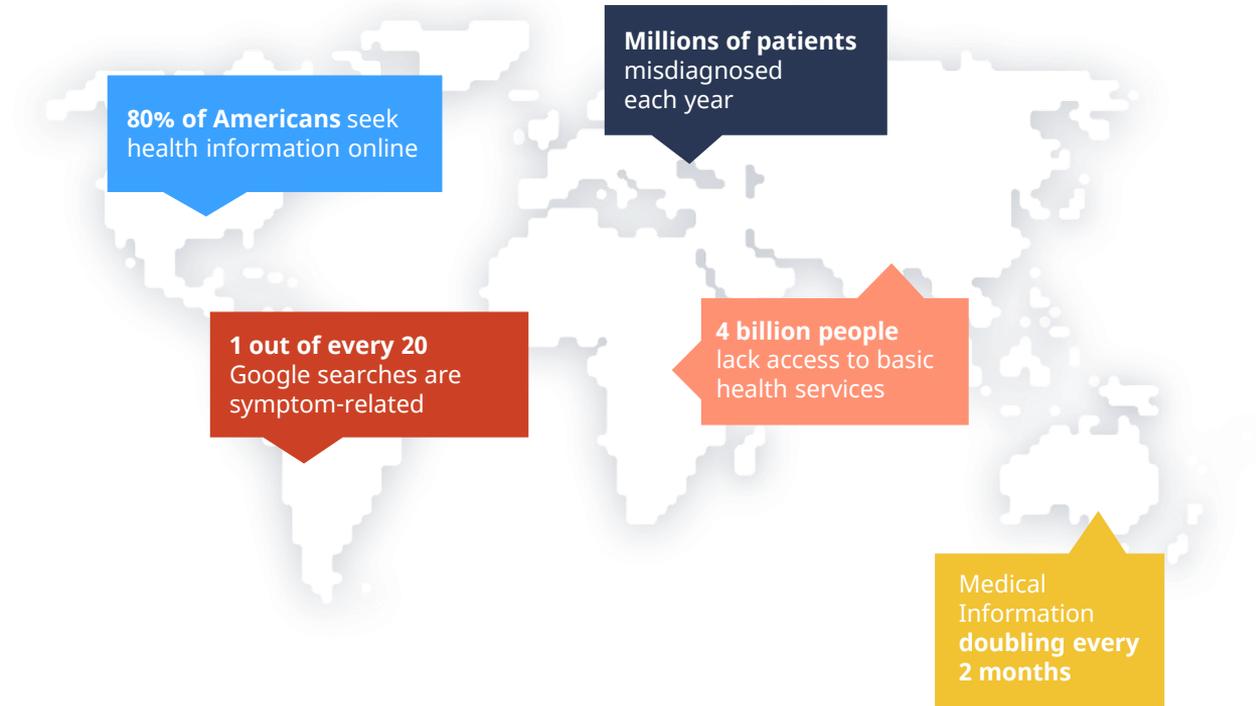
Jeff Cutler
Chief Commercial Officer
Ada Health, Inc.

Hi, I'm Ada.
I can help if you're
feeling unwell.

The state of global healthcare

80% of Americans seek health information online

Millions of patients misdiagnosed each year

1 out of every 20 Google searches are symptom-related

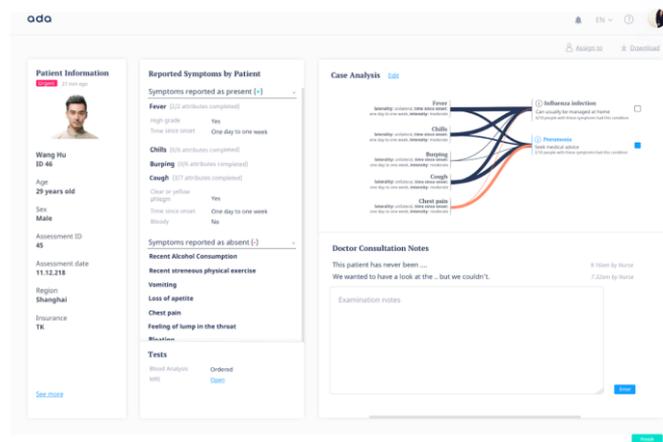**4 billion people** lack access to basic health services

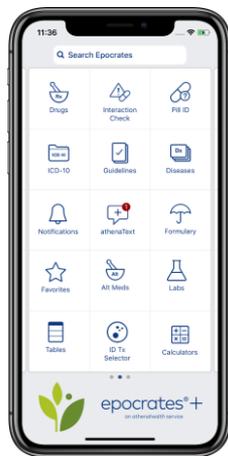Medical Information **doubling every 2 months**
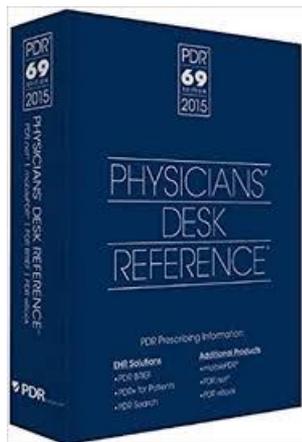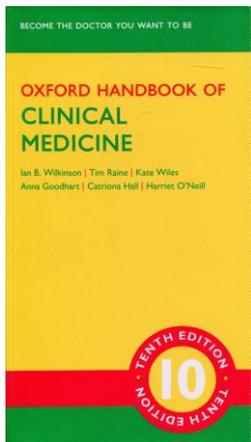
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Our vision

A world where everyone has access to the healthcare they need.

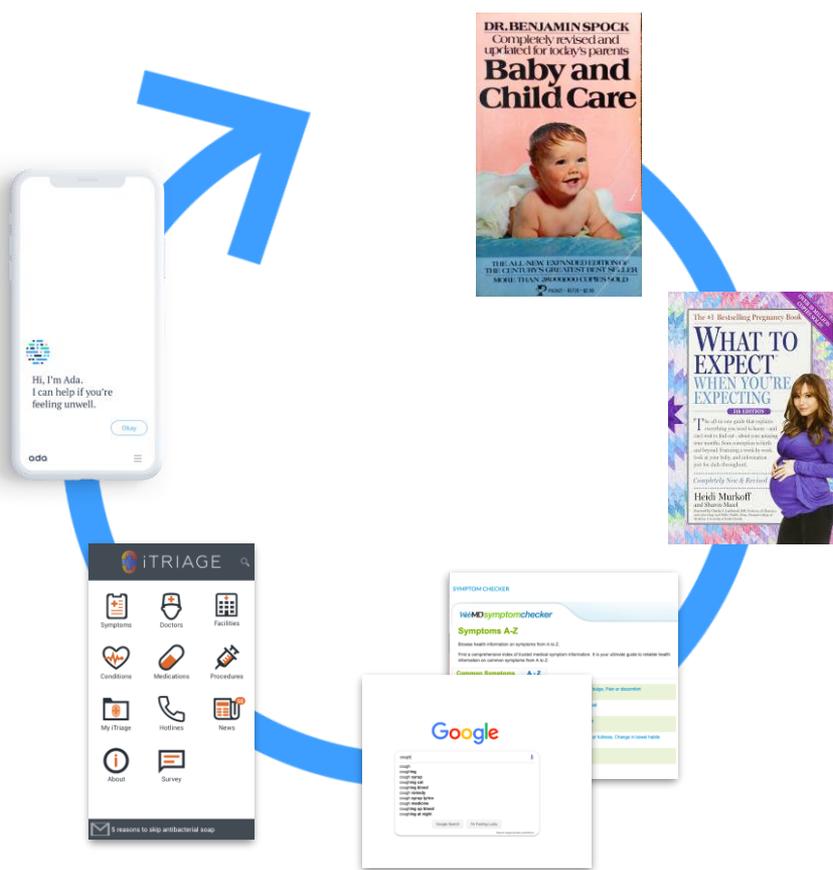# Advancements in decision support have continued to transform the delivery of care
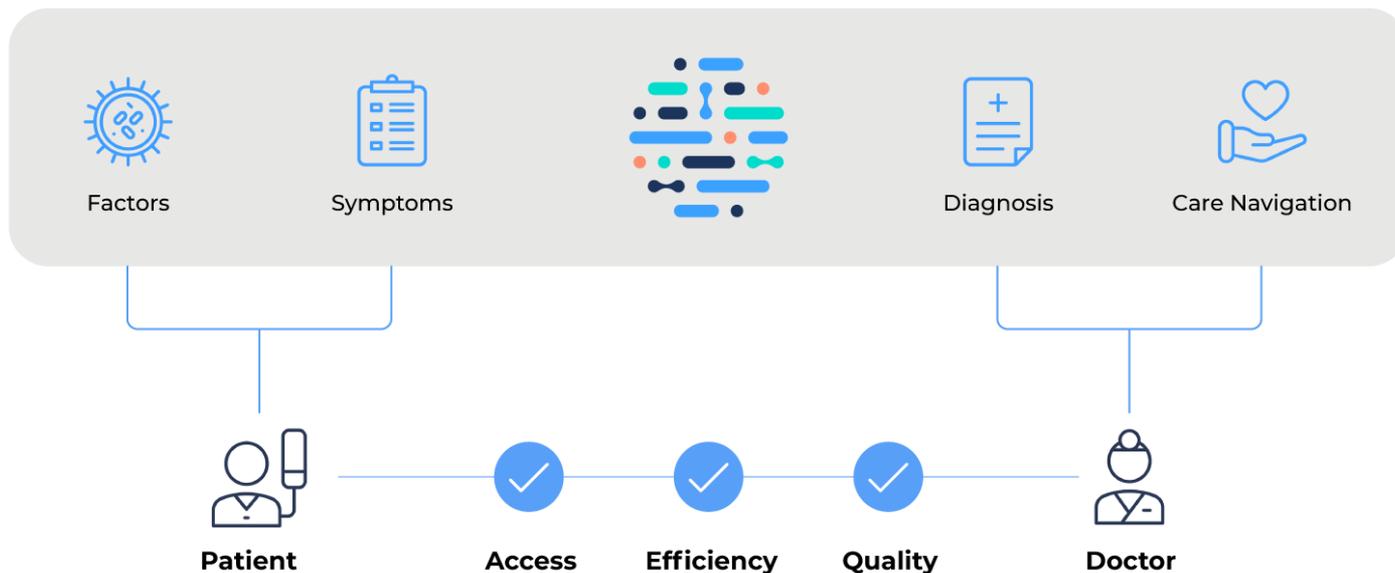
Healthcare-on-demand

Individuals becoming empowered to directly manage their health through the accessibility of information & technology.
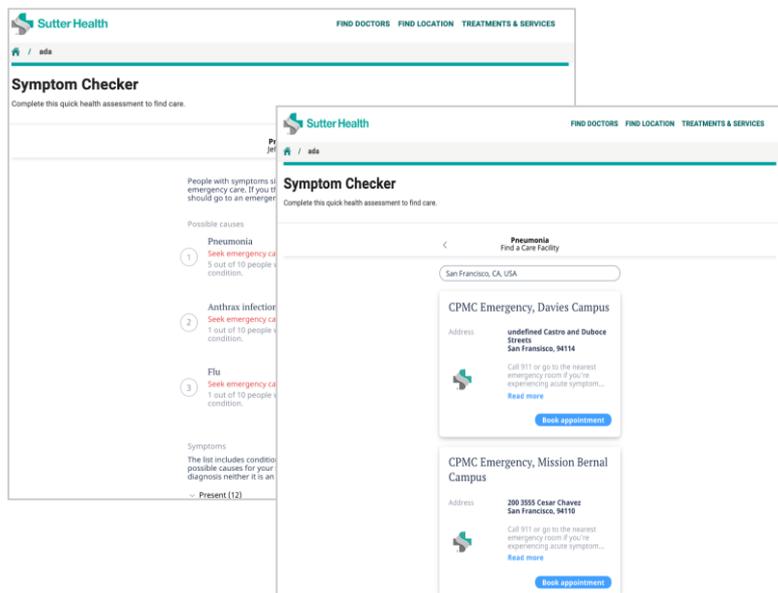
AI - Build a connected ecosystem, supporting individuals, doctors and their interaction

Factors

Symptoms

Diagnosis

Care Navigation

Patient

Access

Efficiency

Quality

Doctor

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Think holistically

Improve patient access and facilitate personalized,
end-to-end experiences.

"Ada supports patients from the first onset of their symptoms. How many patients wait on the phone to talk to a nurse or send an email to their doctors asking if they need to come in for a health issue? With our busy schedules, who has the time to take time off work only to be told they did not need to be seen? When you do need care, Ada can direct patients to the appropriate place — for example, a walk-in clinic around the corner from their house rather than a long wait at the emergency department across town."

Albert Chan, MD
Chief of digital patient experience
Sutter Health

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Sutter Health results thus far

Clearly fulfilling a need of offering 24/7 access to triage.

Over 4,000 assessments completed in first 3 weeks

Over 60% of assessments conducted between 6 pm and 9 am

Prioritize tangible health outcomes

Create efficiencies and optimize the patient-doctor experience.

2 min in average time saved per consultation by doctors having access to Ada assessment.

50% of Ada cases completed **outside clinic opening hours** and 50% **non-urgent**.

97% of patients found Ada **easy to use.**

14% of patients said Ada **made them think differently about care options.**

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Collaborate early

Validate and integrate solutions that empower both patients and clinicians.

RESEARCH   **Open Access**

Can a decision support system accelerate rare disease diagnosis? Evaluating the potential impact of Ada DX in a retrospective study

Simon Ronicke[1,2]*, Martin C. Hirsch[2], Ewelina Türk[2], Katharina Larionov[1], Daphne Tientcheu[1] and Annette D. Wagner[1]

Abstract

Background: Rare disease diagnosis is often delayed by years. A primary factor for this delay is a lack of knowledge and awareness regarding rare diseases. Probabilistic diagnostic decision support systems (DDSSs) have the potential to accelerate rare disease diagnosis by suggesting differential diagnoses for physicians based on case input and incorporated medical knowledge. We examine the DDSS prototype Ada DX and assess its potential to provide accurate rare disease suggestions early in the course of rare disease cases.

Results: Ada DX suggested the correct disease *earlier* than the time of clinical diagnosis among the top five fit disease suggestions in 53.8% of cases (50 of 93), and as the top fit disease suggestion in 37.6% of cases (35 of 93). The median advantage of correct disease suggestions compared to the time of clinical diagnosis was 3 months or 50% for top five fit and 1 month or 21% for top fit. The correct diagnosis was suggested at the *first* documented patient visit in 33.3% (top 5 fit), and 16.1% of cases (top fit), respectively. Wilcoxon signed-rank test shows a significant difference between the time to clinical diagnosis and the time to correct disease suggestion for both top five fit and top fit (z-score -6.68, respective -5.71, $\alpha=0.05$, p-value <0.001).

Conclusion: Ada DX provided accurate rare disease suggestions in most rare disease cases. In many cases, Ada DX provided correct rare disease suggestions early in the course of the disease, sometimes at the very beginning of a patient journey. The interpretation of these results indicates that Ada DX has the potential to suggest rare diseases to physicians early in the course of a case. Limitations of this study derive from its retrospective and unblinded design, data input by a single user, and the optimization of the knowledge base during the course of the study. Results pertaining to the system's accuracy should be interpreted cautiously. Whether the use of Ada DX reduces the time to diagnosis in rare diseases in a clinical setting should be validated in prospective studies.

Keywords: Rare disease diagnosis, Diagnostic decision support system, Time to diagnosis, Ada DX, Artificial intelligence, Probabilistic reasoning

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Empowering individuals with actionable guidance & next steps to directly manage their health, wherever they are.
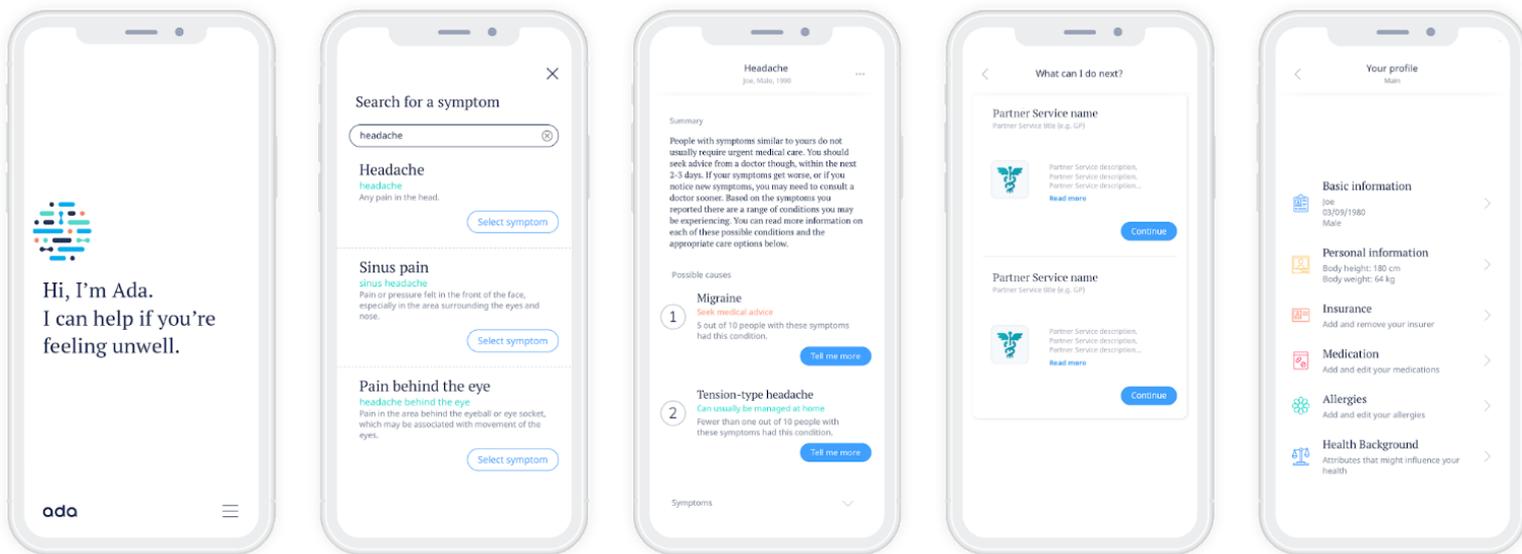
6M+ users
10M assessments

#1 medical app
in 130+ countries

8+ years of deep medical knowledge & AI development

Global partners: NHS, TK, MHH, Gates Foundation, Sutter Health, Fondation Botnar

4.7 happiness score out of 175,000 ratings

Award highlights
MIT Solver, MWC, AI for the Betterment of Humanity

Cut through the hype and focus on impact

What questions should you be asking AI partners?

- Decision tree / rules based or true AI?
- Options for customization?
- How does the solution integrate with existing patient record systems?
- Clinical accuracy?
- What is the clinician experience? Can they access the patient assessment?
- What is the patient experience? Can they book & schedule an appointment?
- What guidance options exist? Do they support your own providers, facilities & care options or require you to use theirs?

This is future of health.

- **Empower** individuals with personalized guidance.

- Connect people to a **broader** set of resources & **care.**

- Reduce the **time** to reach the correct diagnosis.

- Co-develop & **solve** problems **together.**

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Thank you.

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