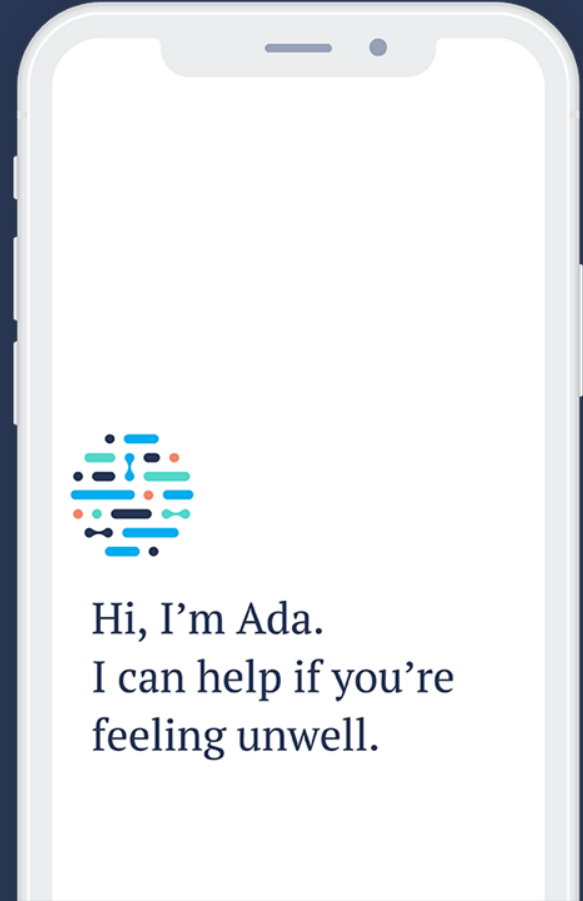




AI & the future of personalized health

Creating equitable access to
healthcare around the world

AI for Good Global Summit
Hila Azadzoy, Managing Director, Global Health Initiative, Ada Health
May 2019



An aerial, top-down view of a large, dense crowd of people, primarily children and young adults, gathered on a dirt ground. The crowd is diverse in age and clothing, with many individuals wearing blue and white uniforms. The perspective is from directly above, looking down on the group.

4 billion people

Lack access to basic health services

oda

2 mins per patient

At hospitals across China



Our Vision

Everyone has access to the healthcare they need.

3 GOOD HEALTH AND WELL-BEING





Hi Julia. I can help you
find out what's going
on. Just start a
symptom assessment.

[Start symptom assessment](#)

ada



Our impact



#1 medical app

in 130 countries



5 languages

Ada is fluent in EN, DE, ES, PT, FR
and is learning SW, RO, AR, ZH



4.7

happiness score
out of 175,000 ratings



6 million

users in two years



10 million

completed health assessments



Awards

MIT Solver, MWC, AI for the Betterment
of Humanity

Supporting earlier, meaningful outcomes for the most complex cases

- **350 million people** globally suffer from a rare disease -- more than the entire U.S. population.
- In over **50% of cases**, Ada provided correct disease suggestions earlier than the time of clinical diagnosis.
- **One third** of patients could have been identified as having a rare disease in the first documented clinical visit.

RESEARCH

Open Access



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

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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

ITU Focus Group AI for Health



- Trusted, standardized benchmarking framework to assess medical quality
- Ada Health driving the symptom assessment topic group
- Collaboration is key to achieve impact at scale

Thank you.

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