

# AI is changing the face of healthcare

AI is already accelerating drug discovery and health delivery. It has great potential to accelerate research, workflow and processes, and even reengineer entire healthcare systems. But what challenges must be addressed first? Shahram Ebadollahi and Ann Aerts share the ideas they discussed at the Intelligent Health summit in Basel this week.

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Dr. Shahram Ebadollahi is the Global Head of Data Science and AI at Novartis. He is responsible for shaping the strategy for data science applications across the pharmaceutical pipeline. He also oversees the strategy and operations of data science and AI efforts across Novartis.

Dr. Ann Aerts is Head of the Novartis Foundation – an organization committed to having a transformational impact on the health of low-income populations. Since 2019, the foundation has focused on how digital technology can transform global health.

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Artificial Intelligence (AI) offers huge potential to transform healthcare and the way we understand health. It can shift countries' health systems from being reactive to proactive - and even predictive. For healthcare practitioners and life sciences professionals, AI is an invaluable tool to extract insights from vast quantities of data to make more informed decisions. While for patients, it empowers self-management and increases access to health and care.

## How is AI accelerating drug discovery and health delivery?

There are opportunities to apply AI, machine learning and data science techniques across the entire care pathway - from early drug discovery through to development, manufacturing and supply chain. We are seeing increasing application of AI to extract findings from real world data that can inform future research and development.

For healthcare delivery, AI is accelerating analysis of medical images of skin, radiological and pathology images, among others. In this space, the Novartis Foundation and Microsoft are partnering to develop an AI-enabled digital health tool that aims to speed up leprosy detection by analysing images of skin lesions. This could ultimately lead to a reality where people in any location can photograph and upload images of lesions to the Cloud – and then receive advice as to whether they should visit a medical specialist.

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## What does the future of AI look like?

While we are in the very early stages of applying AI in healthcare industry, we hope that one day, AI-based approaches could help suggest new molecules with the correct characteristics for the next life-saving drug.

But to realize the full potential of AI, we must integrate it fully and thoughtfully across our entire workflow and processes. In this context, AI could become an accelerant, aiding human experts by sifting through tons of

information and distilling key aspects; suggesting new information at every step of the process to assist decision making; and even automating mundane tasks to free up time for higher value work.

There are further benefits for health systems in low- and middle-income countries, which can leapfrog into better healthcare by reengineering themselves to be more digitally and AI focused. One of the greatest obstacles to improve people's health is the ability to reach underserved populations with quality care – but simple, cost-effective technology such as mobile phones can overcome these barriers. Digitized data collection can help healthcare systems detect risk factors in advance and respond quickly to prevent disease, while real-time data can inform planning and resource-allocation decisions to reduce costs and improve the overall quality of care.

## **What challenges do we face?**

While the potential of AI for healthcare is huge, the healthcare industry has to address a number of challenges to ensure proper adoption and application.

Firstly, team composition must adjust beyond simply injecting AI specialists at the top of the organization – instead, we need a full team of AI-experts, data engineers, domain and business experts.

Secondly, having correct, usable data is essential, as is access to the right platforms and toolsets to enable rapid and scalable creation and deployment of AI-based applications to various use cases across the pharma value-chain.

We also have to take into account the ethical considerations around AI-based tools, developing everything in a responsible way.

## **How is Novartis driving efforts in AI?**

Vas Narasimhan, our CEO, has stated his determination to transform Novartis into a leading medicines company powered by advanced therapy platforms and data science – making AI a core part of our future.

This strategy reflects in continued efforts to recruit the best talent and utilize the best available technologies. These technologies will develop and infuse various use cases in our value-chain through purposefully built AI-based applications.

This strategy also reflects in the Novartis Foundation's new direction, which is to focus on how data, digital and AI can transform global health.

It is an exciting time for all of us work in this growing AI hub in Basel, Switzerland!

How is #AI changing the face of health and care worldwide? Shahram Ebadollahi and @AnnAertsNF discuss

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