# AI's transformative potential in healthcare discussed at San Francisco summit



Renowned cardiologist Eric Topol, MD, opened Danaher’s conference, “AI-Driven R&D, From Promise to Practice,” by emphasising the positive potential of artificial intelligence (AI) in healthcare. Speaking at the event held in San Francisco, Topol stated, “I always pivot to medicine as an example of all the good AI can do because almost everything it’s going to do there is going to be good,” highlighting his role as a significant advocate for AI adoption in the medical field.

The full-day summit gathered leading experts from diverse sectors, including Big Tech, academia, drug discovery, pharmaceuticals, and healthcare, to explore AI's transformative potential in areas such as optimising drug discovery pipelines and enhancing patient care. Topol, an influential voice in the healthcare AI discourse and author of “Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again,” presented compelling evidence of AI's benefits, notably in increasing diagnostic accuracy and alleviating clinicians’ burdens. He remarked, “You hear the term ‘precision medicine’ all the time… It’s really very precise, but we need accuracy in medicine, which we don’t have.”

Currently, around 800,000 Americans are impacted yearly by diagnostic errors, underscoring the urgent need for developments in AI-driven diagnostics. Topol noted advancements like improved breast cancer detection through mammography and higher adenoma detection rates in colonoscopies as promising outcomes of AI application.

The ethical challenges surrounding AI were also a focal point. Topol acknowledged the barriers to embracing AI in medicine, which include regulatory hurdles and transparency limitations. “There is a dark side of AI… We need to build trust so we can really get to implementation,” he added, asserting the importance of addressing issues such as misinformation to prevent setbacks in adoption.

Daphne Koller, PhD, CEO of insitro, echoed Topol’s sentiments through her exploration of the ongoing technological evolution. She elaborated on the gradual, yet exponential advancements in AI over the decades, stating, “We have actually been living on an exponential curve of technology transformation that has been going on for multiple decades.” Koller highlighted the 2022 introduction of ChatGPT as a pivotal moment for AI, paving the way for several foundational models that emerged in late 2024. These include Evo, which interprets genomic sequences, the Human Cell Atlas offering three-dimensional insights into cells, and the latest version of AlphaFold, enhancing protein structure predictions.

The conference also celebrated significant recognitions in the field, as John Hopfield, PhD, and Geoffrey Hinton, PhD, received the 2024 Nobel Prize in Physics for their contributions to neural networks, fundamental to contemporary machine learning. Furthermore, the team behind AlphaFold, including Demis Hassabis, PhD, and John Jumper, PhD, won the 2024 Nobel Prize in Chemistry alongside structural biologist David Baker, PhD, evidencing the growing intersection of AI and life sciences.

During the discussions, Martin Stumpe, PhD, chief AI officer at Danaher, stressed the necessity of merging AI with the physical world to drive practical success, asserting that “the key to success is not in the AI itself.”

Emma Lundberg, PhD, associate professor at Stanford University, proposed strategic collaboration within the virtual cell community to tackle ongoing challenges and validations within the field of biology. Regina Barzilay, PhD, a distinguished professor at MIT, called attention to absent safety mechanisms in AI applications, underlining the need for AI to monitor itself as it emerges in clinical settings. “AI should be monitoring AI,” she asserted, indicating an urgent requirement for safeguards as the industry transitions to more advanced tools.

Highlighting the shift AI has instigated within drug discovery, Usama Fayyad, PhD, executive director of the Institute for Experimental AI, remarked on the speed revolution attributed to AI’s implementation. He cautioned, “You cannot afford not to adopt [AI]. This technology affords so much speed up, that if you ignore it, competitors can completely change the market on you.”

Notably, Recursion has emerged as a frontrunner in the AI drug discovery space, recently announcing the investigational new drug approval for REC-1245, which advanced through the development process nearly twice as fast as the industry average. However, Steve Crossan, founder of Dayhoff Labs, expressed concerns regarding a 10% success rate in clinical trials, suggesting that increased efficiency in drug manufacturing could lead to more failures in the clinic.

The discussions concluded with a recognition of the significant gaps in understanding disease biology, as highlighted by Najat Khan, PhD, chief R&D officer at Recursion, who underscored the limited grasp of biology currently available. Khan reiterated the importance of incremental progress in harnessing AI across a complex landscape, stating, “If our success rate is 10%, you can’t expect 100%.”

As the event highlighted, AI's influence on healthcare continues to expand, characterised by increasing benefits, ongoing challenges, and a forecast of evolving strategies that the industry must navigate as it seeks to harness AI's full potential. The continuous dialogue among experts signals an industry at a pivotal juncture, tasked with aligning expectations and practices as technology accelerates.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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