Generative AI in the Clinic – Hype, Hope and Reality*

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ABSTRACT

Healthcare delivery faces significant challenges and generative AI has emerged as a potential solution to these longstanding healthcare issues. The session "Generative AI in the Clinic – Hype, Hope, and Reality" invited four leading experts at the intersection of artificial intelligence and healthcare to address challenging questions regarding the actual state of GenAI in medical practice. From different perspectives, each panelist brought their unique insight: medical innovation, patient advocacy, regulatory framework, and academic evidence.

KEYWORDS

Generative AI, regulatory, innovation

Introduction

Generative AI or GenAI can be defined as a group of AI algorithms and models that are capable of producing new content, data, or solutions based on patterns and information learned from existing datasets [1]. Large language models (LLMs), a particular type of GenAI, have experienced significant growth in adoption through publicly accessible platforms such as ChatGPT, Claude, and Gemini. Notably, ChatGPT reached 100 million users just 2 months after its launch in 2023 [2].

In healthcare, GenAI debuted with bold headlines: "AI 'outperforms' doctors diagnosing breast cancer" and "Study Finds ChatGPT Outperforms Physicians in High-Quality, Empathetic Answers to Patient Questions". The potential benefits include enhanced operational efficiency, reduced administrative burden, and the prospect of "augmented" clinical practitioners.

However, that raises the question: what is hype and what is reality?

The session *"Generative AI in the Clinic – Hype, Hope, and Reality"* invited four leading experts at the intersection of artificial intelligence and healthcare to address challenging questions regarding the actual state of GenAI in medical practice.

* *SESSION – Generative AI in the Clinic – Hype, Hope, and Reality. Hosts: Lars Lindsköld and Camila Tomikawa.*

Key Considerations

Tatyana Kanvazelli opened the session by sharing her personal experience as she arrived in Munich for the DigiHealthDayS-2025 and suffered a medical emergency. She described her five-hour odyssey through the German healthcare system involving multiple offices, unclear directions, language barrier, and a literal hunt for a church to pay a deposit. Despite receiving good medical care, the visit unveiled massive inefficiencies. Tatyana Kanvazelli then reimagined and contrasted the same visit with GenAI assistance, which could orchestrate the entire patient journey across borders, systems, and languages, transforming healthcare from a fragmented maze into a coordinated experience.

Rudolf Wagner brought the regulatory perspective to the discussion, offering important context for the implementation of GenAI in healthcare settings. He noted that comprehensive AI regulation for most clinical use cases already exists, including frameworks such as the EU Medical Device Regulation (MDR), In Vitro Diagnostic Regulation (IVDR), and the more recent EU AI Act. Wagner emphasized the critical importance of patient safety and drew particular attention to emerging risks posed by LLMs operating on personal devices, which may lack the rigorous validation and safety controls required.

Martin Gerdes offered a sobering reflection on the hype and shortcomings of generative AI in healthcare contexts. He drew attention to the troubling issue of bias, noting that AI systems, by themselves, cannot mitigate or eliminate bias in healthcare applications. A major cause for bias in AI-based decision support is the lack of data representing the target patient groups, in terms of gender, age, genetic similarity, social context, and more. And he also pondered that this fundamental challenge could be addressed by the possibility of "secondary use" of live and historic health data for research purposes, as aimed for by the European Health Data Space (EHDS) [3].

Birgit Bauer brought the essential patient perspective to the discussion, underscoring the fundamental importance of AI literacy for citizens. As AI tools become increasingly integrated into healthcare, citizens must be equipped with sufficient understanding to engage meaningfully with these technologies and comprehend their implications for personal health decisions.

Finally, **Lars Lindsköld** closed the session by summarizing the key points from each panelist and emphasized what he characterized as the most critical principle underlying responsible AI adoption: the imperative that the human component must remain central and non-negotiable, even as we navigate the transformative possibilities of the generative AI era.

Conclusion

As illustrated by Tatyana Kanvazely, healthcare delivery faces significant challenges even in one of Europe's largest and most advanced economies. Generative AI offers potential solutions to these longstanding healthcare issues. However, this potential cuts both ways because the same powerful capabilities that promise to transform healthcare for the better also carry potential risks of, for example, perpetuating biases, compromising patient data, and exacerbating existing inequalities. This dual nature warrants regulatory frameworks as detailed by Rudolf Wagner. Equally critical is the continuous, rigorous examination of evidence emphasized by Martin Gerdes. Last but not least, Birgit Bauer highlighted that patients and citizens must remain at the very center of healthcare. Consequently, it is critical to improve digital health literacy so that patients can understand the capabilities and limitations of AI tools and meaningfully advocate for their own care.

References

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