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Views and Opinions
SCTO perspective

Building the future of AI in Swiss clinical research

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The Swiss Clinical Trial Organisation (**SCTO**) has established a new project group called the National Priority Project on AI in Clinical Research in order to explore developments at the intersection of artificial intelligence (**AI**) and clinical research as well as the opportunities and challenges they bring. In this article, project lead Anastasios Stathis introduces the project group and its objectives and shares his perspectives on emerging applications of AI as well as current barriers to their implementation. In addition, he reflects on how the project group could contribute to Switzerland's clinical research landscape in the coming years.

As a clinician and researcher working in Switzerland, how do you see artificial intelligence (AI) evolving in both clinical practice and clinical research?
AI will increasingly support clinical decision-making, data interpretation, and operational efficiency across healthcare systems. In clinical research, it has the potential to accelerate trial design, feasibility assessments, patient identification, and data analysis. In addition to bringing efficiency gains, AI may also help generate new insights from complex biomedical datasets. However, successful implementation will require robust validation, transparency, and governance frameworks to ensure that AI remains a tool that enhances, rather than replaces, scientific and clinical judgment.

Where do you see the first concrete use cases emerging for implementing AI in clinical trials?
The first practical applications will likely emerge in patient recruitment, protocol feasibility assessments, automated data extraction from electronic health records, and risk-based trial monitoring. These are areas characterised by significant operational burdens and large volumes of structured and unstructured data, making them particularly suitable for AI-supported solutions.

Where do you see the main barriers today for the SCTO's clinical research centres (CRCs) and researchers when it comes to using AI in clinical research?
The main barriers include poor data quality, a lack of interoperability, limited digital infrastructure, regulatory uncertainty, and a shortage of AI expertise within CRCs and research teams. Equally important are issues related to governance, explainability (i.e. the extent to which an AI system's outputs and decisions can be explained in understandable terms), the validation of AI tools, and trust among researchers, patients, and regulators.

In your experience, which parts of the clinical trial process could benefit most from AI support (e.g. design, feasibility, recruitment)?
Recruitment and feasibility are probably the areas where AI could have the highest immediate impact, as they remain major bottlenecks in trial execution. AI can also support protocol optimisation by identifying overly restrictive eligibility criteria, improving study efficiency, and reducing unnecessary complexity. Over time, AI is likely to contribute across the entire trial life cycle.

In a field like oncology, where data are abundant and complex, do you see specific added value for AI-based approaches compared to traditional approaches?
Absolutely. Oncology generates large, multi-dimensional datasets, including clinical, imaging, molecular, genomic, and longitudinal outcome data. AI methods can integrate these diverse sources and identify patterns that are difficult to detect with traditional analytical approaches, which then facilitates biomarker discovery, patient stratification, and more personalised treatment strategies.

You are leading a new project group for the SCTO on AI in clinical research. Could you briefly share its overall aim?
The National Priority Project on AI in Clinical Research aims to create a collaborative national platform to explore how AI can be implemented responsibly, effectively, and ethically in clinical research in Switzerland. Our objective is not only to identify promising AI applications but also to map existing tools, assess unmet needs, engage stakeholders, and develop practical recommendations that support the adoption of AI across the Swiss clinical research ecosystem.

How do you see this project group contributing to Switzerland's clinical research landscape both in the near future and over the next few years?
In the short term, the group aims to raise awareness, share best practices, and identify high-impact use cases. In the longer term, we hope to contribute to harmonisation efforts, support the development of infrastructure and governance frameworks, facilitate pilot projects, and help position Switzerland as a leader in the responsible and trustworthy use of AI in clinical research.

What infrastructure needs to be in place at individual institutions/CRCs in order to use AI more safely and effectively in clinical research?
Institutions need secure and scalable data infrastructures, interoperable systems, robust governance frameworks, and access to computational and data science expertise. Standardised validation and auditing procedures, together with AI literacy training for researchers and study teams, will be equally important. Ultimately, successful implementation requires not only technology but also a culture that promotes responsible innovation.