Towards Personalized Care for Cardiovascular Patients

The iCARE4CVD project aims to pave the way for personalized prevention and treatment of cardiovascular disease. The project has several goals: it seeks to improve early diagnosis of patients at risk for cardiovascular diseases, assign risk levels to patients, and identify those who require urgent intervention. Additionally, it aims to create AI-based tools that can predict how individual patients will respond to specific treatments. Project coordinator Hans-Peter Brunner-La Rocca, Professor of Cardiology at Maastricht UMC+, provides further insight.

LIMITED ROOM FOR PERSONALIZATION — FOR NOW
Currently, the ability to offer personalized prevention and treatment is limited, says Brunner-La Rocca. "Of course, we can respond to side effects that patients experience and consider their preferences," he notes. "But the current prevention and treatment guidelines are still very much 'one-size-fits-all,' leaving little room for individual approaches." Many studies on cardiovascular risk exist, he explains, "But they all end with the line: 'further studies are needed.' You can keep writing that — or do something about it."

That's exactly what the public-private international research collaboration of 36 partners in iCARE4CVD aims to achieve. What's unique about this partnership is not only the focus on risk prediction but also explicitly mapping the interaction with the healthcare provider to understand what's needed to act on those predictions.

"This calls for prospective research. You need to know: if you take action now, will that lead to the intended outcome for the patient in the future? That's a step rarely taken — and it's our ambition to make it happen".

"You can't view healthcare without the industry — it's a key player in making initiatives possible."

FEDERATED DATABASE:
PRIVACY-FIRST DATA ACCESS
What sets this project apart is its use of a federated database, a decentralized, privacy-conscious way to make data accessible. "This means the data are not physically pooled together," explains Brunner-La Rocca, "but access is created to cohorts from different sources, enabling analysis across cohorts using AI."

The hope is that not only academic institutions, but also industry partners, will share data. Understandably, companies might hesitate if the findings suggest their drug is effective for fewer patients than claimed in clinical trials. However, Brunner-La Rocca questions whether that concern is justified. Ronald Vollebregt, Real World Data & Technology Specialist at Amgen, confirms there is willingness: "Our concern isn't with a shrinking market. We've seen that in the past. When a new biomarker revealed which patients responded positively to a drug, the population became smaller — but the medication was used more effectively among those who truly benefited." The real challenge lies in making clinical trial data available, since patients often gave consent specifically for one study. "This is a challenge within our global organization, but we are committed to it as a Dutch organization. With more therapies becoming available, predictive models will play an increasingly important role".

PUBLIC-PRIVATE PARTNERSHIP:
A NECESSARY ECOSYSTEM
Brunner-La Rocca had long desired a public-private partnership with pharma and tech companies. "Until now, we hadn't received funding. The call from Innovative Health Initiative (IHI) led to €22 million in funding over 4.5 years, and that created the opportunity we needed." The collaboration is valuable because the academic and industry partners complement each other — and bring different mindsets and networks. "You can't separate healthcare from industry. It's an essential player for realizing initiatives."

Vollebregt agrees: "We strengthen each other in an ecosystem. We need healthcare providers and scientists, and they need us".

"You need to know: if you take action now, will it truly deliver the expected result for the patient in the future?"

DEVELOPING NEW CARE PATHWAYS

The project runs through March 2028. "The goal is to carefully validate the models in the second half of the project," says Brunner-La Rocca. "AI-driven analyses are harder to understand, so the models must be validated in independent cohorts."

The most promising model will also be tested in a clinical study. These steps will contribute to developing new care pathways. That will mark the beginning of a broader transition to personalized care for all cardiovascular diseases, with the patient playing a greater role and the healthcare provider acting more as a coach. "The iCARE4CVD project should not be the end point — it must definitely have a continuation".

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