Blood-based biomarker signatures in a population at risk of Alzheimer's Disease: interim results of the PREDICTOM study

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Verena Pikulski[1], Johanna Mitterreiter[1], Anna-Katharine Brem[2,3], Zunera Khan[2], Gabrielle Nieuwoudt[2], Gaby Marquardt[1], and the PREDICTOM Consortium

[1] Clinical and Technology Innovation, Siemens Healthineers AG, Forchheim, Germany
[2] Centre for Healthy Brain Ageing, Department of Psychological Medicine, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK
[3] University Hospital of Old Age Psychiatry, University of Bern, Bern, Switzerland

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Introduction

There is an urgent, unmet need for early detection of Alzheimer's disease (AD). Blood-based biomarkers are important in meeting this need because they are quick, minimally invasive, and cost-effective—making them ideal for large-scale screening. The PREDICTOM study aims to discover biomarker patterns that can predict and detect AD at earlier stages. To achieve this, the study assesses various biomarkers both remotely and in-clinic, including methods such as capillary blood sampling from the fingertip.

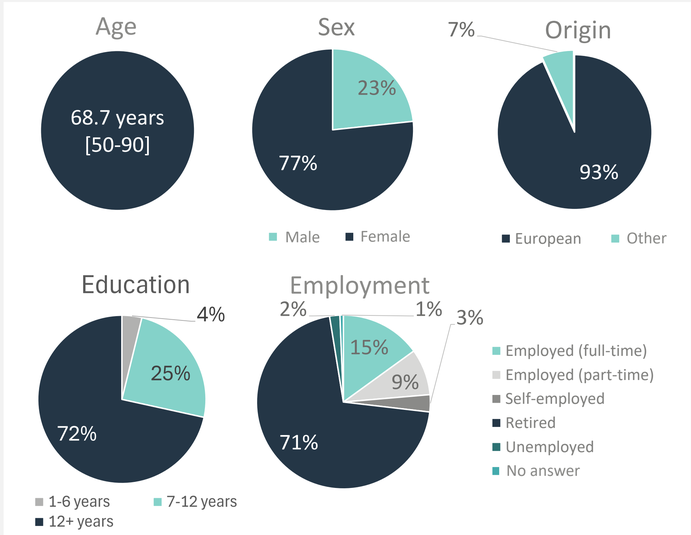

Figure 1. Cohort demographics. A total of 313 participants is included in this analysis.

PREDICTOM study and cohort

PREDICTOM is a European cohort study enrolling participants aged 50 and above who are at elevated risk for developing AD. Level 1 recruitment consists of home-based assessments, including finger-prick capillary blood collection and a series of digital and physiological evaluations.

A total of 313 participants successfully completed capillary sampling by end of May 2026. They were recruited by three different clinical sites: King's College London (KCL), Ludwig-Maximilian-University Hospital Munich (LMU) and Stavanger University Hospital (SUS) **(Fig. 1)**.

Methods (Capillary blood)

Capitainer SEP10 dried plasma spot (DPS) cards were sent to participants' home. Capillary blood was obtained from the fingertip according to the manufacturer's instructions. Each participant sampled 2 plasma spots. All DPS cards were shipped to a central laboratory for analysis.

DPS were extracted using Quanterix Simoa Dry Blood extraction kit using a 1:15 dilution in assay extraction buffer and measured using the Simoa ALZpath p-Tau 217 assay. Each DPS delivered a single pTau217 concentration.

Results

A total of 619 plasma spots was evaluated. Validity was determined by blue dye coloration. Overall, 223 DPS out of 619 spots showed blue coloration leading to a success rate of 36%. The success rate varied between 27% to 50% depending on the clinical site **(Table 1)**. On a participant level, at least 51% of overall participants successfully sampled one or two valid DPS, ranging between 41% to 69% of participants per clinical site **(Fig. 2)**.

	KCL	LMU	SUS	Total
Number of spots	316	78	225	619
Number of valid spots	86	24	113	223
Success rate	**27%**	**31%**	**50%**	**36%**

Table 1. Overall success rate of at-home finger-prick sampling by clinical site.

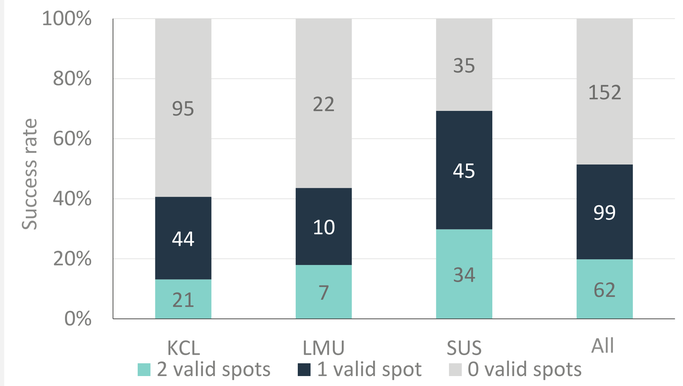

Figure 2. Feasibility of at-home finger-prick sampling – Participant overview per clinical site. Numbers of participants are indicated for each category.

Valid DPS were measured with Simoa ALZpath p-Tau 217. Two DPS were below the limit of detection (LOD) of 0.0004 pg/mL, 34% of samples fell between the LOD and the lower limit of quantification (LLOQ, 0.00433 pg/mL). The majority of samples had pTau217 concentrations below 0.02 pg/mL with outliers measuring up to 0.198 pg/mL **(Fig. 3)**.

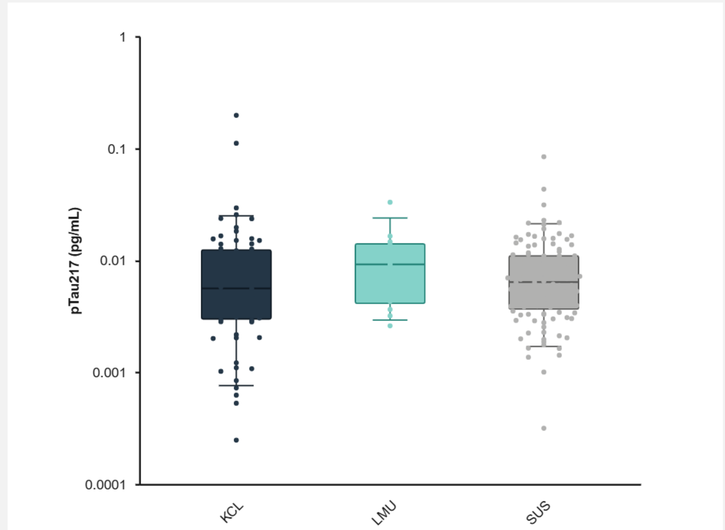

Figure 3. pTau217 levels of finger-prick samples across different sites

Conclusion

Self-sample at-home collection of finger-prick blood collection in an older, at-risk population proves to be difficult for the individual participant. Despite extensive participant instructions in written and video format, average success rate of sampling only reached around 50%. Capillary pTau217 concentrations are expectedly low in the majority of this population and will be correlated with other PREDICTOM assessments in the future.

Outlook

Level 1 recruitment is ongoing at six clinical sites across Europe and will increase the existing participant pool. A subset of participants from level 1 is further enrolled into level 2, which includes additional in-clinic procedures such as venous blood collection, imaging, cognitive assessments, and physiological tests.

Wed-0443

PREDICTOM receives funding the Innovative Joint Undertaking under Grant Agreement no. 101132356. This Joint Undertaking receives support from the European Union's Horizon Europe research and innovation programme, COCIR, EFPIA, MedTechEurope and Vaccines Europe. Our UK and Swiss partners receive funding from UKRI and Swiss State Secretariat. See www.predictom.eu for more details.

CONTACT:
johanna.mitterreiter@siemens-healthineers.com