

Title: A Self-Collection Blood Test for PFASs: A pilot study to compare measurements with a traditional serum method

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Serum is a useful biomonitoring tool for many persistent organic pollutants, including PFASs. However, obtaining venous blood samples for testing can be difficult and costly. Therefore, a remote sampling approach was developed at Eurofins for quantifying PFASs in whole blood samples collected using volumetric absorptive micro-samplers (VAMS). VAMS offer a unique advantage in that they allow for self-collection of blood using a finger prick. In this study we sought to compare PFAS exposure measured by self-collection of blood using VAMS to a standard venous serum sample collection approach. Participants living in a community with prior PFAS drinking water contamination were visited at their home where blood samples were collected by a phlebotomist using a venous blood draw as well as participant self-collection using VAMS. These venous samples were transported to the laboratory where they were processed to isolate serum. Whole blood from the venous tubes were also loaded onto VAMS to compare differences in capillary vs venous whole blood PFAS levels. Twenty-one of the 43 PFASs investigated were detected in at least one or more samples, with PFOS, PFOA and PFHxS detected in most samples at levels that are elevated compared to the general population. PFAS levels in serum were significantly and highly correlated with measurements in capillary VAMS. Serum PFAS levels were generally two-fold higher than whole blood reflecting expected differences in their composition. Notably, FOSA was detected in both venous and capillary VAMS, but not in serum. Overall, these findings indicate that VAMS are useful self-collection tools for assessing human exposure to PFASs.