Use of human dried-blood spots as a minimally invasive method to assess exposure to organic pollutants

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The concept of sampling newborn infants for a few microliters of blood to screen for inherited disorders has been introduced by Guthrie at the University of Buffalo in 1963\textsuperscript{1}. Human dried-blood spots (DBS) are generally simply obtained by pricking the heel or finger to sample a few microliters (20-100 µl) of capillary blood on filter paper\textsuperscript{2}.

DBS testing is now considered for exposure to environmental toxicants due to the availability of sensitive and specific methodologies. Dua \textit{et al.} and Burse \textit{et al.} already reported preliminary data on the potential use of 100 µL DBS for the measurement of some persistent organic pollutants (POP)\textsuperscript{3,4}.

The use of GC×GC hyphenated to high-resolution (HR) time-of-flight (TOF) mass spectrometer (MS) with negative chemical ionization (NCI) allows us to quantify PCB-153 and DDE in 20µL DBS. These molecules are representative of PCB and organochlorine pesticides contamination. This small quantity of blood accounts for 1 or 2 drops of blood for a minimally invasive and comfortable analysis suitable for newborns as well as adults.