Background: Confirmatory assays for HIV diagnosis are not well implemented in limited income settings, impeding an early HIV detection and, consequently, delaying the prescription of antiretroviral treatment in the infected population. Bio-Rad Geenius™ HIV 1/2 Confirmatory Assay is a single-use immunocromatographic test for the confirmation and differentiation of individual antibodies of HIV-1 and HIV-2 in venous whole blood, serum or plasma samples. Since plasma/serum is difficult to collect and/or process in remote settings from limited resource countries and in mobile populations, our objective was to validate for the first time the assay Geenius™ HIV 1/2 for diagnostic use utilising dried blood spots (DBS) specimens.

Methodology: Geenius™ HIV 1/2 test was performed to confirm the HIV infection in 70 women previously diagnosed as HIV-1 positive by one to three rapid tests using whole blood samples in the Hospital of Bata, Equatorial Guinea, from November 2012 to August 2013. DBS specimens were prepared by adding two drops of blood to fill each circle of 903 filter paper cards (GE Healthcare). Cards were dried overnight at room temperature and stored at −20°C until their shipping at room temperature to Madrid, Spain for testing. After their arrival, they were stored at −80°C until use. Blood from one DBS circle per patient was eluted in 150 μl elution buffer for 1 hour with gentle rotation. The test was performed according to the manufacturer indications, but using 40 μl of the eluted circle as specimen. The results obtained from Geenius™ HIV 1/2 were confirmed by western blot (New Lav Blot I, Bio-Rad) using the same elution volume.

Results: Geenius™ HIV 1/2 (Bio-Rad) successfully confirmed the HIV-1 infection using DBS in all 70 tested women from Equatorial Guinea with at least one positive rapid test and only using a low volume of eluted dried blood. No HIV-1/HIV-2 coinfections were found in the study cohort. The HIV-1 positivity was confirmed in all cases in DBS by western blot (Bio-Rad).

Conclusions: This is the first report that proves a good performance of Geenius™ HIV 1/2 assay (Bio-Rad) for the confirmation of the HIV-1 infection using only two drops of dried blood. Our results approve the utility of this rapid confirmatory assay using a low volume of dried blood when a lack of adequate infrastructure to collect, store or transport plasma or serum is found. DBS are a practical alternative to plasma for HIV serological diagnosis.