

**LARGE-SCALE PILOT FEASIBILITY EVALUATION OF VEIL-BASED SELF-SAMPLING OF  
CERVICOVAGINAL SPECIMENS ACCESSIBLE THROUGH DEDICATED DIGITAL LOGISTIC  
PLATFORM FOR INTEGRATED SCREENING OF  
HR-HPV AND SEXUALLY TRANSMITTED INFECTIONS**

**Ciuhodaru Madalina<sup>1</sup>, Calin Alina-Mihaela<sup>2</sup>, Nitu Bogdan-Florentin<sup>3</sup>, Popa Ioana Denisa<sup>4</sup>, Bucsineanu Cristian<sup>1,5</sup>,  
Vernet Vincent<sup>6</sup>, Mboumba Bouassa Ralph-Sydney<sup>7</sup>, Juval Avala Ntsigouaye<sup>8</sup>, Sebaoun David<sup>6</sup>, Chaubron Franck<sup>9</sup>, Bélec Laurent<sup>10</sup>**

<sup>1</sup>Faculty of Medicine, Grigore T. Popa University of Medicine and Pharmacy Iasi, Iasi, Romania ;

<sup>2</sup>Faculty of Medicine and Pharmacy, Dunarea de Jos University, Galati, Romania ;

<sup>3</sup>Constanta Clinical Hospital for Infectious Diseases, Romania, and Ovidius University of Constanta, Romania ;

<sup>4</sup>Primary care physician obstetrics-gynecology, Constanța, Romania ;

<sup>5</sup>Clinica Dr Criste, Suceava, Romania ;

<sup>6</sup>Laboratoire Labio, Aix-en-Provence, France ;

<sup>7</sup>Institut du Savoir Montfort, Montfort Hospital, Ottawa, Canada ;

<sup>8</sup>National Laboratory of Public Health, Marien Ngouabi University, Republic of Congo ;

<sup>9</sup>SF Biotech SAS, Aix-en-Provence, France ;

<sup>10</sup>Université Paris Cité, Paris, France.

**Introduction.** High-risk human papillomavirus (HR-HPV) causes cervical cancer, but other sexually transmitted infections (STIs) act as cofactors for progression. This study evaluated the feasibility, logistics, and epidemiological outcomes of a community-based screening program in Romania utilizing an innovative veil-based self-sampling device and a digital management platform for HR-HPV and STI detection.

**Methods.** Adult women (n=960) used the V-Veil UP2™ device (V-Veil-Up Production SRL, Pitesti, Romania) for self-collection. Samples were managed via a dedicated digital platform (<https://www.labio.gyntest.com>) and transported at room temperature to a French reference laboratory. Analysis was performed using Allplex™ multiplex PCR kits for HR-HPV and essential STIs (Seegene, Seoul, South Korea).

**Results.** The workflow showed high technical success, with valid results for 97.7% of HR-HPV and 97.4% of STI samples. Ambient temperature stability eliminated cold-chain requirements. Overall, 17.2% of women tested positive for HR-HPV and 26.7% for at least one STI. HPV-68 (3.0%) and Ureaplasma parvum (24.0%) were most prevalent. The 18–29 age group exhibited the highest risk. Multivariate analysis revealed significant biological associations: Chlamydia trachomatis was linked to a 4.5-fold increased HR-HPV risk (p=0.019) and a 14-fold risk for multiple infections (p<0.001). Mycoplasma hominis and Ureaplasma species were also independently associated with HR-HPV acquisition or persistence.

**Conclusions.** Veil-based self-sampling, supported by digital logistics, is a feasible, scalable, and less-invasive alternative to clinician-led screening. The device's stability facilitates centralized molecular testing across borders. The strong association between specific STIs and HR-HPV necessitates a transition toward integrated co-testing models to modernize public health policies and cervical cancer prevention.