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DNA Concentration from self samples for HPV testing

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Dear editor,

We read with interest the article of Kellen et al.[1] We are encouraged by the positive response to self-sampling, particularly among postmenopausal women. However, we were struck by the findings that DNA concentration decreased as a function of age. In an ongoing longitudinal study of oral and cervical HPV prevalence at the University of Michigan, using the HerSwab self-collection kit and covering women from ages 18-70, we find no such age relationship with DNA concentration. This result appears consistent regardless of whether we control for time between collection and preservation in PreservCyt media, the time from preservation to extraction, and HPV result (Invalid vs Positive/Negative).

Participants collected 1 to 6 samples over two years for a total of 317 samples. The left panel of Figure 1 shows the distribution of DNA concentrations from the baseline (first visit) vaginal self-samples collected by our study participants by age, for age groups 18-29 (n=91 individuals), 30-39 (n=12 individuals), 40-49 (n=7 individuals), 50-59 (n=11 individuals), 60+ (n=7 individuals). About half of the study samples are from college-age individuals, thus the larger number and variability for the youngest age group. The right panel shows individual mean and ranges of self-sample DNA concentration, i.e., samples from single individuals collected over two years by age group; 18-29 (n=10 individuals, 25 samples), 30-39 (n=12 individuals, 37 samples), 40-49 (n=7 individuals, 17 samples), 50-59 (11 individuals, 37 samples) and 60+ (7 individuals, 19 samples). The panel shows all study individuals of ages >=30, but only a random subsample of 10 individuals of ages 18-29 (due to space constraints). As shown in the figure, there can be considerable variability in the DNA concentration from self-collected samples from the same individual, collected a few months apart, but there is little to suggest there are trends by age.

The lack of association between age and DNA concentration - i.e., no decrease with age- is consistent with the results briefly reported by Kellen et al in the Discussion section when using the Evalyn brush instead of the Qvintip brush. We thus strongly agree with Kellen et al that additional studies are needed to assess the relative accuracy and performance of different self-sampling devices in combination with specific HPV-tests and in specific sociodemographic groups.[2] Such studies should ideally control for additional factors such as the time between collection and DNA extraction and HPV test result, and storage conditions.[3]

We commend Kellen et al for their article and suggest that other self-sampling studies assess and report the levels of DNA concentration, at least for a sub-sample. Given the high uptake of self-sampling for HPV testing among post-menopausal women, it is critical to identify the optimal screening protocol and devices for them.

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Conflicts of interest
None

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Figure Legend

Figure 1. **Left panel:** DNA concentration (ng/uL) distributions of self-sample taken at the first study visit by age groups; 18-29 (n=91 individuals), 30-39 (n=12 individuals), 40-49 (n=7 individuals), 50-59 (n=11 individuals), >=60 (n=7 individuals). **Right panel:** DNA concentration of self-samples taken by study participants over ≥1 visit by age-group; 18-29 (n=10 individuals, 25 samples), 30-39 (n=12 individuals, 37 samples), 40-49 (n=7 individuals, 17 samples), 50-59 (11 individuals, 37 samples) and 60+ (7 individuals, 19 samples). Each boxplot corresponds to a study participant. The right panel shows all study participants of ages >=30, but only a random subsample of 10 participants of ages 18-29 (due to space constraints).