Supplementary Material

HPV self-sampling with mRNA testing benefits routine screening

Eeva Auvinen, Pekka Nieminen, Jukka Pellinen, Joakim Dillner, Jussi Tarkkanen, Anni Virtanen

Table of Contents:

Supplementary Table 1
Supplementary Table 2
Supplementary Table 1. HPV genotyping results of vaginal self-samples. (a) Luminex and Aptima HPV genotyping results of 141 Aptima positive samples. (b) Individual HPV genotypes detected in the Luminex HPV genotyping assay among the 141 AHPV positive samples. N, number of samples. (c) HPV genotypes detected among HSIL and LSIL cases. hrHPV includes established, probable and possible high risk HPV genotypes according to WHO classification. AHPV, Aptima HPV Assay; AHPVgt, Aptima HPV Genotyping Assay; hrHPV, high-risk HPV; lrHPV, low-risk HPV.

|                      | Luminex result | HPV 16\(^1\) | HPV 18\(^2\) | HPV 45\(^3\) | Other AHPV genotype | Non-AHPV genotype | Negative |
|----------------------|----------------|---------------|---------------|---------------|---------------------|-------------------|----------|
| Aptima result        |                |               |               |               |                     |                   |          |
| HPV 18/45            | 22             |               | 3             | 3             |                     |                   | 1        |
| Other hrHPV          | 5              | 2\(^4\)       | 9             | 55            |                     | 20                | 18       |
| AHPV+, AHPVgt invalid|                |               |               |               |                     |                   | 2        |

\(^{1}\) HPV 16 alone or together with other HPV genotypes.

\(^{2}\) HPV 18 alone or together with other HPV genotypes (excluding 16).

\(^{3}\) HPV 45 alone or together with other HPV genotypes (excluding 16 and 18).

\(^{4}\) One sample contained HPV 18, 45 and 52.

|                      | HPV genotype | N  |
|----------------------|--------------|----|
| hrHPV covered by AHPV| HPV 16       | 27 |
|                      | HPV 51       | 15 |
|                      | HPV 45       | 13 |
|                      | HPV 31       | 12 |
|                      | HPV 52       | 12 |
|                      | HPV 68       | 11 |
|                      | HPV 56       | 9  |
|                      | HPV 66       | 7  |
|                      | HPV 18       | 5  |
|                      | HPV 58       | 5  |
|                      | HPV 59       | 5  |
|                      | HPV 33       | 4  |
|                      | HPV 39       | 4  |
|                      | HPV 35       | 3  |
| hpv not covered by AHPV | hpv | count |
|------------------------|-----|-------|
|                        | HPV 70 | 9     |
|                        | HPV 82 | 3     |
|                        | HPV 69 | 2     |
| lrHPV                  | HPV 83 | 8     |
|                        | HPV 74 | 7     |
|                        | HPV 86 | 6     |
|                        | HPV 81 | 5     |
|                        | HPV 90 | 4     |
|                        | HPV 42 | 3     |
|                        | HPV 43 | 3     |
|                        | HPV 89 | 3     |
|                        | HPV 61 | 2     |
|                        | HPV 11 | 1     |
|                        | HPV 40 | 1     |

| c | Age, y | Aptima | Luminex gt |
|---|--------|--------|------------|
| HSIL | 56 | Other hrHPV | HPV 16 |
| HSIL | 51 | Other hrHPV | HPV negative |
| HSIL | 36 | HPV 16 | HPV 16 |
| HSIL | 31 | HPV 16 | HPV 16 |
| HSIL | 31 | HPV 18/45 | HPV 45 |
| HSIL | 31 | Other hrHPV | HPV 33 |
| HSIL | 27 | Other hrHPV | HPV 18, 45, 52 |
| LSIL | 66 | Other hrHPV | HPV 35 |
| LSIL | 61 | HPV 16 | HPV 16 |
| LSIL | 57 | Other hrHPV | HPV 52, 56 |
| LSIL | 51 | Other hrHPV | HPV 35, 42, 45 |
| LSIL | 51 | Other hrHPV | HPV negative |
| LSIL | 50 | AHPV positive | n/d |
| LSIL | 46 | Other hrHPV | HPV 58 |
| LSIL | 46 | Other hrHPV | HPV negative |
| LSIL | 36 | Other hrHPV | HPV 42, 56, 66, 74 |
1The sample was not sufficient for genotyping.
2n/d, not done.
Supplementary Table 2. Cytological and histological findings of hrHPV positive women attending regular screening in 2017 presented by age group.

| Age group | Participants, total | Normal/benign cytology/histology* | Borderline cytology**, no histology | Histological LSIL | Histological ≥HSIL*** | Loss to follow-up (worse than borderline cytology) |
|-----------|---------------------|-----------------------------------|-------------------------------------|-------------------|-----------------------|-----------------------------------------------|
|           | N       | N       | %     | N       | %     | N       | %     | N       | %     | N       | %     |
| 25-34     | 8 608   | 7 926   | 92.1  | 590     | 6.9   | 26      | 0.3   | 56      | 0.7   | 10      | 0.1   |
| 35-44     | 7 556   | 7 118   | 94.2  | 353     | 4.7   | 28      | 0.4   | 49      | 0.6   | 8       | 0.1   |
| 45-54     | 6 529   | 6 092   | 93.3  | 389     | 6.0   | 13      | 0.2   | 29      | 0.4   | 6       | 0.1   |
| 55-64     | 6 436   | 6 166   | 95.8  | 246     | 3.8   | 12      | 0.2   | 9       | 0.1   | 3       | 0.0   |
| 65-69     | 3 025   | 2 933   | 97.0  | 84      | 2.8   | 3       | 0.1   | 2       | 0.1   | 3       | 0.1   |
| Total     | 32 154  | 32 154  | 100.0 | 32 154  | 100.0 | 32 154  | 100.0 | 32 154  | 100.0 | 32 154  | 100.0 |

* Includes women with only Pap-smear follow-up, only colposcopy follow-up with histological samples or both, with normal or benign (reactive) results.
** Includes ASC-US, AGC-NOS and LSIL cytological findings with recommendation to cytological follow-up in 12 months, no histological follow-up.
*** Includes HSIL, AIS and invasive carcinomas.