Table 1. Performance of single test strategies to predict CIN2+ and CIN3+ histology among HIV positive and HIV negative cohorts (with 95% CI)

HIV-positive women, HPW (n=456)		**Histology diagnosis used to calculate test performance**							
Test (threshold)	**Positivity rate %** [95% CI]	**CIN2+ histology** **CIN2+ Prevalence: 203/456 (44.5%)**				**CIN3+ histology** **CIN3+ Prevalence: 106/456 (23.3%);** **ICC prevalence: 13/456 (2.9%)**			
Performance indicators	**Referral to treatment**	**Sensitivity %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]	**NPV %** [95% CI]	**Sensitivity %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]	**NPV %** [95% CI]
A: Visual inspection (VIA?)	47.8 [43.2-52.4]	66.5 [60.0-73.0]	67.2 [61.4-73.0]	61.9 [55.4-68.4]	71.4 [65.7-77.2]	75.5 [67.2-86.8]	60.6 [55.4-65.7]	36.7 [30.3-43.1]	89.1 [85.1-93.0]
B: Visual inspection (VILI?)	50.4 [45.8-55.0]	67.0 [60.5-73.5]	62.9 [56.9-68.8]	59.1 [52.7-65.5]	70.4 [64.4-76.3]	76.4 [68.3-84.6]	57.4 [52.2-62.6]	35.2 [29.0-41.4]	88.9 [84.8-93.1]
C: Cytology(ASCUS)	39.9 [35.4-44.1]	63.6 [56.9-70.2]	79.1 [74.0-84.1]	70.9 [64.2-77.5]	73.0 [66.5-79.5]	75.5 [67.2-83.8]	70.9 [66.1-75.6]	44.0 [36.7-51.2]	90.5 [87.0-94.0]
D: Cytology(LSIL)	33.4 [29.0-37.8]	55.7 [48.8-62.6]	90.5 [86.8-94.2]	83.0 [76.6-89.4]	71.1 [63.4-78.8]	71.2 [62.3-80.0]	82.0 [77.9-86.1]	54.8 [46.3-63.3]	90.3 [86.9-93.6]
E: hrHPV(any)	48.5 [43.9-53.1]	78.8 [73.2-84.5]	75.9 [70.6-81.2]	72.4 [66.5-78.3]	81.7 [76.6-86.8]	82.1 [74.7-89.5]	61.7 [56.6-66.8]	39.4 [32.9-45.8]	91.9 [88.4-95.4]
HIV-negative women, HNW (n=648)		**Histology diagnosis used to calculate test performance**							
Test (threshold)	**Positivity rate %** [95% CI]	**CIN2+ prevalence: 164/648 (25.3%)**				**CIN3+ prevalence: 67/648 (10.3%);** **ICC prevalence: 9/648 (1.4%)**			
Performance indicators	**Referral to treatment**	**Sensitivity %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]	**NPV %** [95% CI]	**Sensitivity %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]	**NPV %** [95% CI]
A: Visual inspection (VIA?)	18.7 **[15.7-21.7]**	35.6 [28.2-43.0]	87.0 [84.0-90.0]	47.9 [38.9-56.9]	80.0 [76.6-83.5]	50.0 [37.7-62.3]	84.9 [81.9-87.8]	27.3 [19.3-35.3]	93.7 [91.7-95.8]
B: Visual inspection (VILI?)	**20.9 [17.7-24.0]**	35.6 [28.2-43.0]	84.1 [80.8-87.4]	43.0 [34.5-51.4]	79.5 [72.6-86.4]	51.5 [39.2-63.8]	82.6 [79.5-85.7]	25.2 [17.8-32.6]	93.8 [91.7-95.9]
C: Cytology(ASCUS)	**17.0 [14.1-20.0]**	41.7 [34.1-49.3]	91.3 [88.8-93.9]	61.8 [52.6-71.0]	82.3 [75.1-89.6]	59.1 [47.0-71.2]	87.8 [85.1-90.5]	35.5 [26.4-44.5]	95.0 [93.1-96.8]
D: Cytology(LSIL)	**8.0 [5.9-10.1]**	20.1 [13.9-26.4]	97.5 [96.1-98.9]	72.7 [59.2-86.3]	78.7 [66.3-91.2]	35.9 [24.0-47.9]	96.4 [94.8-97.9]	52.3 [37.1-67.5]	93.1 [91.1-95.2]
E: hrHPV(any)	**23.5 [20.2-26.7]**	49.1 [41.4-56.8]	85.2 [82.0-88.3]	52.6 [44.6-60.6]	83.3 [77.3-89.3]	68.2 [56.7-79.3]	81.6 [78.5-84.8]	29.6 [22.3-36.9]	95.8 [94.0-97.5]

CIN2+ = cervical squamous intraepithelial neoplasia grade 2 or worse; CIN3+ = cervical squamous intraepithelial neoplasia grade 3 or worse; ICC = invasive cervical cancer; VIA? = visual inspection with acetic acid uncertain or worse; VILI? = visual inspection with Lugol's iodine uncertain or worse; ASCUS+ = atypical squamous cells of unknown significance or worse result; LSIL+ = low grade squamous intra-epithelial lesion or worse result; any = any of the 14 specified high risk HPV DNA types; 95% CI = 95% Confidence interval

Table 2: Performance of combination test strategies using a dual result approach (high- and low-risk result) among HIV-positive and HIV-negative cohorts (with 95% CI).

HIV-positive women, HPW (n=456)	**Test positivity rate**			**Histology diagnosis used to calculate test performance**			
Test 1 (threshold); Test 2 (threshold)	**Primary test positive: Test 1 as primary**	**Primary test positive: Test 2 as primary**	**Dual test positive: High-risk group**	**CIN3+ prevalence: 106/456 (23.3%) ICC prevalence: 13/456 (2.9%)**		**CIN2+ prevalence: 203/456 (44.5%)**	
Performance indicators	**Reflex to second test %** [95% CI]	**Reflex to second test %** [95% CI]	**Refer to treatment %** [95% CI]	**Sensitivity %** [95% CI]	**NPV %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]
F: Visual inspection (VIA?); Cytology (ASCUS+)	47.8 [43.2-52.4]	39.9 [35.4-44.1]	28.3 [24.1-32.4]	64.2 [54.9-73.4]	88.4 [84.9-91.9]	90.9 [87.4-94.5]	82.2 [75.5-88.8]
G: Visual inspection (VIA?); Cytology (LSIL+)	47.8 [43.2-52.4]	33.4 [29.0-37.8]	25.0 [21.0-29.0]	62.3 [52.9-71.6]	88.3 [84.9-91.7]	93.7 [90.7-96.7]	86.0 [79.5-92.4]
H: Visual inspection (VIA?); hrHPV (any)	47.8 [43.2-52.4]	48.5 [43.9-53.1]	29.8 [25.6-34.0]	67.0 [57.9-76.0]	89.1 [85.6-92.5]	91.7 [88.3-95.1]	84.6 [78.4-9.7]
I: hrHPV (any); Cytology (ASCUS+)	48.5 [43.9-53.1]	39.9 [35.4-44.1]	31.4 [27.1-35.6]	70.8 [62.0-79.5]	90.1 [86.8-93.4]	90.9 [87.4-94.5]	83.9 [77.8-90.0]
J: hrHPV (any); Cytology (LSIL+)	48.5 [43.9-53.1]	33.4 [29.0-37.8]	28.1 [23.9-32.2]	68.9 [60.0-77.8]	90.0 [86.7-93.2]	92.5 [89.2-95.8]	85.2 [78.9-91.4]
K: hrHPV (any); HPV (16/18)	48.5 [43.9-53.1]	N/A	17.1 [13.6-20.6]	37.7 [28.4-47.1]	82.5 [78.7-86.4]	96.4 [94.2-98.4]	88.5 [81.3-95.7]
L: hrHPV (any); HPV16/18 OR Cytology (ASCUS+) *	48.5 [43.9-53.1]	N/A	34.7 [30.3-39.0]	73.6 [65.1-82.1]	90.6 [87.3-93.9]	89.7 [86.0-93.5]	83.5 [77.7-89.4]
HIV-negative women, HPW (n=648)	**Test positivity rate**			**Histology diagnosis used to calculate test performance**			
Test 1 (threshold); Test 2 (threshold)	**Primary test positive: Test 1 as primary**	**Primary test positive: Test 2 as primary**	**Dual test positive: High-risk group**	**CIN3+ prevalence: 67/648 (10.3%); ICC prevalence: 9/648 (1.4%)**		**CIN2+ prevalence: 164/648 (25.3%)**	
Performance indicators	**Reflex to second test %** [95% CI]	**Reflex to second test %** [95% CI]	**Refer to treatment %** [95% CI]	**Sensitivity %** [95% CI]	**NPV %** [95% CI]	**Specificity %** [95% CI]	**PPV %** [95% CI]
F: Visual inspection (VIA?); Cytology (ASCUS+)	18.7 **[15.7-21.7]**	**17.0 [14.1-20.0]**	8.2 [6.1-10.3]	42.4 [30.3-54.8]	93.6 [91.6-95.6]	96.9 [95.4-98.5]	71.7 [59.3-84.1]
G: Visual inspection (VIA?); Cytology (LSIL+)	18.7 **[15.7-21.7]**	**8.0 [5.9-10.1]**	5.3 [3.5-7.0]	30.3 [19.0-41.6]	92.5 [90.4-54.6]	98.6 [97.5-99.6]	79.4 [65.3-93.5]
H: Visual inspection (VIA?); hrHPV (any)	18.7 **[15.7-21.7]**	**23.5 [20.2-26.7]**	7.4 [5.4-9.4]	43.9 [31.7-56.1]	93.8 [91.9-95.8]	97.7 [96.4-99.1]	77.1 [64.9-89.3]
I: hrHPV (any); Cytology (ASCUS+)	**23.5 [20.2-26.7]**	**17.0 [14.1-20.0]**	10.2 [7.9-12.5]	50.0 [37.7-62.3]	94.3 [92.5-96.2]	96.5 [94.9-98.1]	74.2 [63.5-85.0]
J: hrHPV (any); Cytology (LSIL+)	**23.5 [20.2-26.7]**	**8.0 [5.9-10.1]**	5.7 [3.9-7.5]	33.3 [21.7-44.9]	92.8 [90.7-94.9]	98.4 [97.2-99.5]	78.4 [64.7-92.1]
K: hrHPV (any); HPV (16/18)	**23.5 [20.2-26.7]**	N/A	7.6 [5.5-9.6]	34.9 [23.1-46.6]	92.8 [90.8-94.9]	96.7 [95.1-98.3]	67.4 [53.9-80.8]
L: hrHPV (any); HPV16/18 OR Cytology (ASCUS+) *	**23.5 [20.2-26.7]**	N/A	13.9 [11.2-16.6]	59.1 [47.0-71.2]	95.2 [93.4.-97.0]	93.6 [91.4-95.8]	65.6 [55.6-75.5]

CIN2+ = cervical squamous intraepithelial neoplasia grade 2 or worse; CIN3+ = cervical squamous intraepithelial neoplasia grade 3 or worse; ICC = invasive cervical cancer; VIA? = visual inspection with acetic acid with result of uncertain or worse; ASCUS+ = atypical squamous cells of unknown significance or worse result; LSIL+ = low grade squamous intra-epithelial lesion or worse result; any = any of the 14 specified high risk HPV DNA types; 16/18 = positive for HPV DNA of either HPV16 or HPV18 or both

95% CI = 95% Confidence interval

*Test 2 is defined as the combination of partial genotyping (HPV16/18) and cytology (threshold ASCUS) for hrHPV positives who are not HPV16/18 positive.

Table 3: Performance of combination test strategies using a triple result approach (high-, intermediate- and low-risk results) among HIV-positive and HIV-negative cohorts (with 95% CI)

HIV-positive women, HPW (n=456)	Screening sequence 1: Test 1 as primary and Test 2 as secondary test			Screening sequence 2: Test 2 as primary and Test 1 as secondary test			Performance of strategy		
Test 1 (threshold); Test 2 (threshold)	Single test positive: Intermediate-risk group	CIN3+ prevalence: 106/456 (23.3%); ICC prevalence: 13/456 (2.9%)		Single test positive: Intermediate-risk group	CIN3+ prevalence: 106/456 (23.3%); ICC prevalence: 13/456 (2.9%)		Dual test positive: High-risk group	CIN2+ prevalence: 203/456 (44.5%)	
Performance indicators	Recall for follow-up % [95% CI]	Sensitivity % [95% CI]	NPV % [95% CI]	Recall for follow-up % [95% CI]	Sensitivity % [95% CI]	NPV % [95% CI]	Refer to treatment % [95% CI]	Specificity % [95% CI]	PPV % [95% CI]
M: Visual inspection(VIA?); Cytology(ASCUS+)	19.5 [15.7 to 24.0]	75.5 [67.2-86.8]	89.1 [85.1-93.0]	11.6 [8.7-15.2]	75.5 [67.2-83.8]	90.5 [87.0-94.0	28.3 [24.1-32.4]	90.9 [87.4-94.5]	82.2 [75.5-88.8]
N: Visual inspection(VIA?); Cytology (LSIL+)	22.8 [18.6-27.6]	75.5 [67.2-86.8]	89.1 [85.1-93.0]	7.5 [5.2-10.4]	71.2 [62.3-80.0]	90.3 [86.9-93.6]	25.0 [21.0-30.0]	93.7 [90.7-96.7]	86.0 [79.5-92.4]
O: Visual inspection(VIA?); hrHPV (any)	18.0 [14.3-22.3]	75.5 [67.2-86.8]	89.1 [85.1-93.0]	18.6 [14.9-23.1]	82.1 [74.7-89.5]	91.9 [88.4-95.4]	29.8 [25.6-34.0]	91.7 [88.3-95.1]	84.6 [78.4-9.7]
P: hrHPV(any); Cytology(ASCUS+)	17.1 [13.5-21.4]	82.1 [74.7-89.5]	91.9 [88.4-95.4]	8.6 [6.1-11.7]	75.5 [67.2-83.8]	90.5 [87.0-94.0	31.4 [27.1-35.6]	90.9 [87.4-94.5]	83.9 [77.8-90.0]
Q: hrHPV(any); Cytology(LSIL+)	20.4 [16.5-25.0]	82.1 [74.7-89.5]	91.9 [88.4-95.4]	4.4 [2.7-6.8]	71.2 [62.3-80.0]	90.3 [86.9-93.6]	28.1 [23.9-32.2]	92.5 [89.2-95.8]	85.2 [78.9-91.4]
R: hrHPV(any); HPV(16/18)	31.4 [26.4-36.9]	82.1 [74.7-89.5]	91.9 [88.4-95.4]	N/A	N/A	N/A	17.1 [13.6-20.6]	96.4 [94.2-98.4]	88.5 [81.3-95.7]
S: hrHPV(any); HPV(16/18) OR Cytology(ASCUS+)	13.8 [10.6-17.7]	82.1 [74.7-89.5]	91.9 [88.4-95.4]	N/A	N/A	N/A	34.7 [30.3-39.0]	89.7 [86.0-93.5]	83.5 [77.7-89.4]
HIV-negative women, HNW (n=648)	**Screening sequence 1: Test 1 as primary and Test 2 as secondary test**			**Screening sequence 2: Test 2 as primary and Test 1 as secondary test**			**Performance of strategy**		
Test 1 (threshold); Test 2 (threshold)	Single test positive: Intermediate-risk group	CIN3+ prevalence: 67/648 (10.3%); ICC prevalence: 9/648 (1.4%)		Single test positive: Intermediate-risk group	CIN3+ prevalence: 67/648 (10.3%); ICC prevalence: 9/648 (1.4%)		Dual test positive: High-risk group	CIN2+ prevalence: 164/648 (25.3%)	
Performance indicators	Recall for follow-up % [95% CI]	Sensitivity % [95% CI]	NPV % [95% CI]	Recall for follow-up % [95% CI]	Sensitivity % [95% CI]	NPV % [95% CI]	Refer to treatment % [95% CI]	Specificity % [95% CI]	PPV % [95% CI]
M: Visual inspection(VIA?); Cytology(ASCUS+)	10.7 [8.3-13.5]	50.0 [37.7-62.3]	93.7 [91.7-95.8]	8.8 [6.7-11.4]	59.1 [47.0-71.2]	95.0 [93.1-96.8]	8.2 [6.1-10.3]	96.9 [95.4-98.5]	71.7 [59.3-84.1]
N: Visual inspection(VIA?); Cytology(LSIL+)	13.5 [10.9-16.7]	50.0 [37.7-62.3]	93.7 [91.7-95.8]	2.8 [1.6-4.4]	35.9 [24.0-47.9]	93.1 [91.1-95.2]	5.3 [3.5-7.0]	98.6 [97.5-99.6]	79.4 [65.3-93.5]
O: Visual inspection(VIA?); hrHPV(any)	11.3 [8.8-14.2]	50.0 [37.7-62.3]	93.7 [91.7-95.8]	16.1 [13.1-19.5]	68.2 [56.7-79.3]	95.8 [94.0-97.5]	7.4 [5.4-9.4]	97.7 [96.4-99.1]	77.1 [64.9-89.3]
P: hrHPV(any); Cytology(ASCUS+)	13.3 [10.6-16.4]	68.2 [56.7-79.3]	95.8 [94.0-97.5]	6.8 [4.9-9.1]	59.1 [47.0-71.2]	95.0 [93.1-96.8]	10.2 [7.9-12.5]	96.5 [94.9-98.1]	74.2 [63.5-85.0]
Q: hrHPV(any); Cytology(LSIL+)	17.8 [14.7-21.3]	68.2 [56.7-79.3]	95.8 [94.0-97.5]	2.2 [1.2-3.6]	35.9 [24.0-47.9]	93.1 [91.1-95.2]	5.7 [3.9-7.5]	98.4 [97.2-99.5]	78.4 [64.7-92.1]
R: hrHPV(any); HPV(16/18)	15.9 [13.0-19.3]	68.2 [56.7-79.3]	95.8 [94.0-97.5]	N/A	N/A	N/A	7.6 [5.5-9.6]	96.7 [95.1-98.3]	67.4 [53.9-80.8]
S: hrHPV(any); HPV(16/18) OR Cytology(ASCUS+)	9.6 [7.3-12.3]	68.2 [56.7-79.3]	95.8 [94.0-97.5]	N/A	N/A	N/A	13.9 [11.2-16.6]	93.6 [91.4-95.8]	65.6 [55.6-75.5]

Intermediate risk group = single test positive, recall for follow-up; High risk group = double test positive, for treatment; Low risk group = double test negative, for routine screening interval; CIN3+ = cervical squamous intraepithelial neoplasia grade 3 or worse; CIN2+ = cervical squamous intraepithelial neoplasia grade 2 or worse; VIA? = visual inspection with acetic acid with result of uncertain or worse; ASCUS+ = atypical squamous cells of unknown significance or worse result; LSIL+ = low grade squamous intra-epithelial lesion or worse result; any = positive for any of the 14 specified high risk HPV DNA types; 16/18 = positive for HPV DNA of either HPV16 or HPV18 or both; 95% CI = 95% Confidence interval