Supplementary Table 1. Quality assessment of included studies

| **Study** | **Patient selection** | **Index test** | **Reference standard** | **Flow and Timing** | **Risk of bias** |
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|  |  |  |  |  | **Patient selection** | **Index test** | **Reference test** |
| Segondy et al, 2016 | WLHIV aged 25-50 years attending HIV outpatient and treatment centres in Ouagadougou and Johannesburg invited to participate in a study comparing cervical cancer screening methods. Women with history of treatment for cervical cancer were excluded.  | Pre-specified cut-off (1pg/ml); results of index test are masked towards reference test. Quality control of index test conducted. | All participants were referred for colposcopy performed by trained colposcopists. Systematic 4-quadrant cervical biopsy, including directed biopsy of any suspicious lesions, was performed for participants who had abnormalities detected by cytology, VIA/VILI or colposcopy, or who were HR-HPV DNA positive (Digene HC-II). All CIN2+ and 5% random sample of ≤CIN1 determined by consensus of 5 histopathologists. Participants negative for ALL of VIA/VILI, colposcopy, cytology and HR-HPV were not biopsied and considered CIN negative. Results of reference test are masked towards index test. | Flow: Inadequate test results and LTFU explained (6% LTFU or inadequate test result). Timing: Index test performed within 4 weeks of enrolment; Reference test performed within 9 weeks of index test.  | Low | Low | Low |
| Tuerxun et al, 2016 | Women with positive results for VIA/VILI or cytology as part of opportunistic screenings for cervical cancer in the outpatient department of the Affiliated Tumor Hospital of Xinjiang Medical University were randomly selected for CareHPV and HC2 testing.  | Results of index test are masked towards reference test. | Colposcopy performed for women with positive results from VIA/VILI or cytology and direct biopsy or four-quadrant biopsies were taken. No random selection of screen negative women for biopsy. Histopathological diagnosis determined by consensus of 2 histopathologists. | Flow: Unclear; 212 women who were positive for VIA/VILI or cytology were selected for careHPV testing Timing: Index test performed within 14 days of sample collection. | Moderate-high | Low | Moderate |
| Bansil et al, 2015 | Women aged 25-60 from 5 districts in Kampala and Wakiso District invited to participate in screening study.  | Pre-specified cut-off (1pg/ml); Results of index test are masked towards reference test.  | Women who were screen-negative (for all of VIA, cytology and careHPV) were advised to return for screening in 3 years. Screen positive women (on any test) were referred to colposcopy and directed biopsy of any abnormal area.  | Flow: Of 386 WLHIV eligible, 272 (72%) returned for follow-up and had adequate test results; of 1756 HIV-negative women eligible, 946 (54%) returned for follow-up and had adequate test results. (Bias in follow-up by HIV status, however results are stratified by HIV status).  | Low | Low | Low |
| Jeronimo et al, 2014 | Population based recruitment as part of a multisite demonstration project in India, Nicaragua and Uganda.  | Pre-specified cut-off (1pg/ml); results of index test are masked towards reference test.  | Women who were screen-negative (for all of VIA, cytology and careHPV) were advised to return for screening in 3 years. Screen positive women (on any test) were referred to colposcopy and directed biopsy of any abnormal area. A 10% random sample of negative biopsies and all CIN2+ positive histologic specimens were independently reviewed by an external pathologist blinded to original diagnosis.  | Flow: In India and Nicaragua, the proportion of women who returned for screening by all tests and with adequate tests results was high (94-95%), but lower in Uganda (67%).  | Moderate (Uganda) | Low | Low |
| Zhao et al, 2013 | All women aged 25-65 living in chosen communes (Yangcheng, Xinmi and Tonggu) invited to participate in screening study.  | CareHPV: Pre-specified cut-off (1pg/ml); results of index test are masked towards reference test. OncoE6: Quality control of test conducted. | Women who tested positive for any of the screening test (VIA, HPV E6, HC2 and careHPV ) and approximately 10% of screen-negative women were referred to colposcopy and biopsy. Biopsy taken on visible lesions. Histopathological diagnosis determined by consensus of 2 histopathologists based on worst diagnosis of biopsies. Participants not indicated for biopsy or with negative histology finding were considered CIN negative. | Flow: Of 7543 recruited, 7541 (99.9%) were screened and 7421 (98%) had adequate results. | Low | Low | Low |
| Gage et al, 2012 | Women attending a population –based HPV prevalence study in Irun, Nigeria | Study described training of lab technicians on careHPV test and quality control of testing, indicating high agreement between independent users (96%).  | At colposcopy visit (indicated if VIA, LBC or HR-HPV PCR positive), up to 4 acetowhite areas were biopsied. Biopsy tissue preserved in 10% formalin and processed and read in US. | Flow: Among 500 women screened, 387 (69%) were positive for any of VIA, liquid-based cytology (LBC) or HR-HPV by PCR and were referred to colposcopy and careHPV testing. A random selection of screen-negative women were selected (42 of 67 (63% of all screen-negative)Timing: careHPV samples tested within 2 weeks of visit.  | Moderate | Low | Low |
| Qiao et al, 2008 | Women aged 30-54 years with no history of CIN living in rural villages in Shanxi Province, China screened for cervical cancer. Randomised cluster sampling method used | Pre-specified cut-off (1pg/ml); results of index test are masked towards reference test.  | Women who were negative on colposcopy, but had abnormal liquid-basd cytology (ASCH, LSIL or HSIL or higher), unsatisfactory cytology, positive HCII or CareHPV were recalled for second colposcopy and four-quadrant biopsy. All CIN2+ and 10% random sample of ≤CIN1 determined by consensus of 3 histopathologists. Participants not indicated for biopsy or with negative histology finding were considered CIN negative. | Flow: Of 3721 women recruited, 2530 (68%) were enrolled; 6% with incomplete data.  | Moderate | Low | Low |
| Chibwesha et al, 2016 | WLHIV attending screening at University Teaching Hospital, Lusaka, Zambia were invited to participate.  | Unclear masking towards reference test | All participants underwent 2-quadrant biopsy (from areas of transformation zone that appeared abnormal/acetowhite areas, and for women with no acetowhite changes, biopsies were taken form 6 o’clock and 12 o’clock position). Cervical biopsies read by certified pathologist. | Flow: UnclearTiming: Unclear | Moderate | Low-Moderate | Low-Moderate |

**Supplementary Figure 1. Summary receiver operating characteristic (HSROC) of the *care*HPV test for CIN2+ (A) and CIN3+ (B) using clinician-collected cervical swabs**

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| 1. **CIN2+**
 | 1. **CIN3+**
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**Supplementary Figure 2. Summary receiver operating characteristic (HSROC) of the *care*HPV test for CIN2+ (C) and CIN3+ (D) using self-collected vaginal swabs**

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| 1. **CIN2+**
 | 1. **CIN3+**
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