HPV Prevention and Control Board

Impact of COVID-19 on Cervical Cancer Screening, Treatment and Vaccination

12-13 November, 2020, Antwerp, Belgium

Is self-sampling a solution to overcome COVID-19 related decreases in screening coverage

M. Arbyn[1], M. Poljak[2]

(1) Unit of Cancer Epidemiology, Sciensano, Brussels, Belgium
(2) Institute of Microbiology and Immunology, University of Ljubljana, Slovenia

Content

- Accuracy of HPV tests on vaginal self- vs clinician-collected cervical samples
- Efficacy to reach under-screened population by offering self-sampling devices
- Self-sampling & COVID-pandemic
- Shortage in supply

Accuracy of hrHPV testing on to detect cervical precancer

THE LANCET Oncology

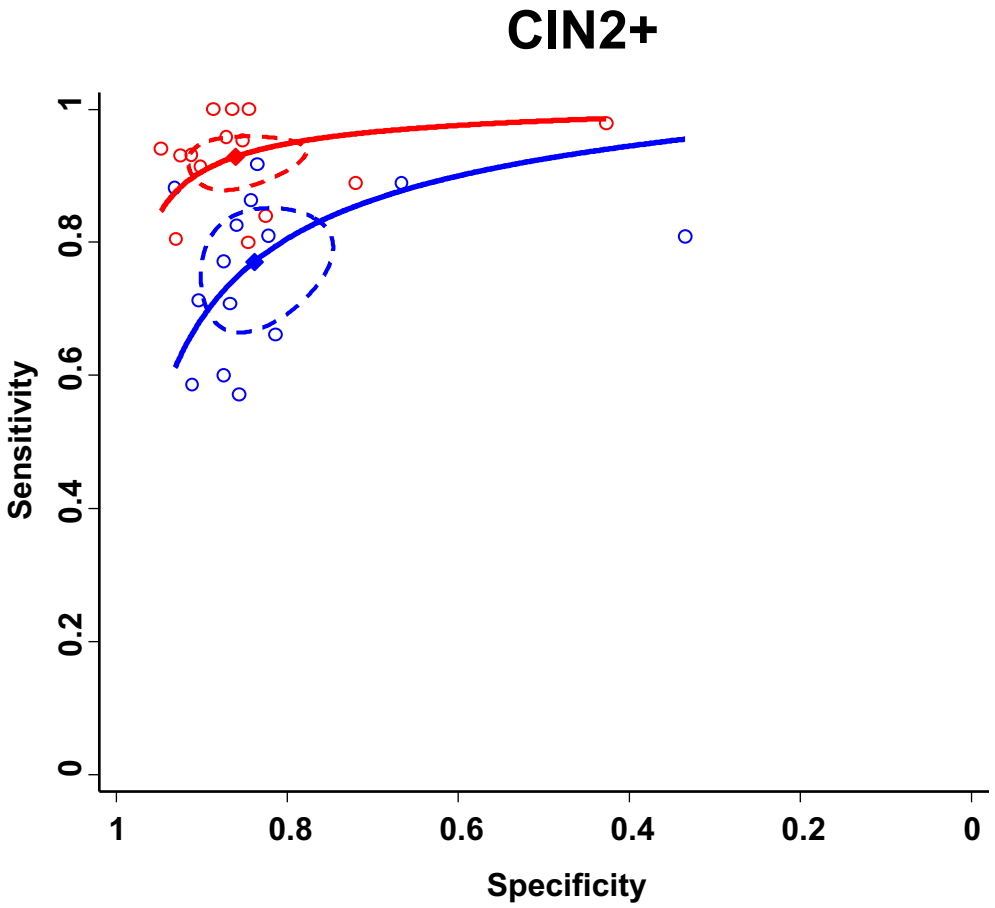
Volume 15, Issue 2, February 2014, Pages 172–183

Accuracy of human papillomavirus testing on self-collected versus clinician-collected samples: a meta-analysis

M Arbyn, 2014, updated to Nov 2020

Absolute accuracy in screening studies

Signal-amplification based tests (HC2, Cervista)



Sensi: 0.93 (CI 0.89-0.96); Speci: 0.86 (CI 0.81-0.90)
Sensi: 0.77 (CI 0.69-0.82); Speci: 0.84 (CI 0.77-0.88)

Arbyn et al, Lancet Oncol; BMJ 2020; update Nov 2020

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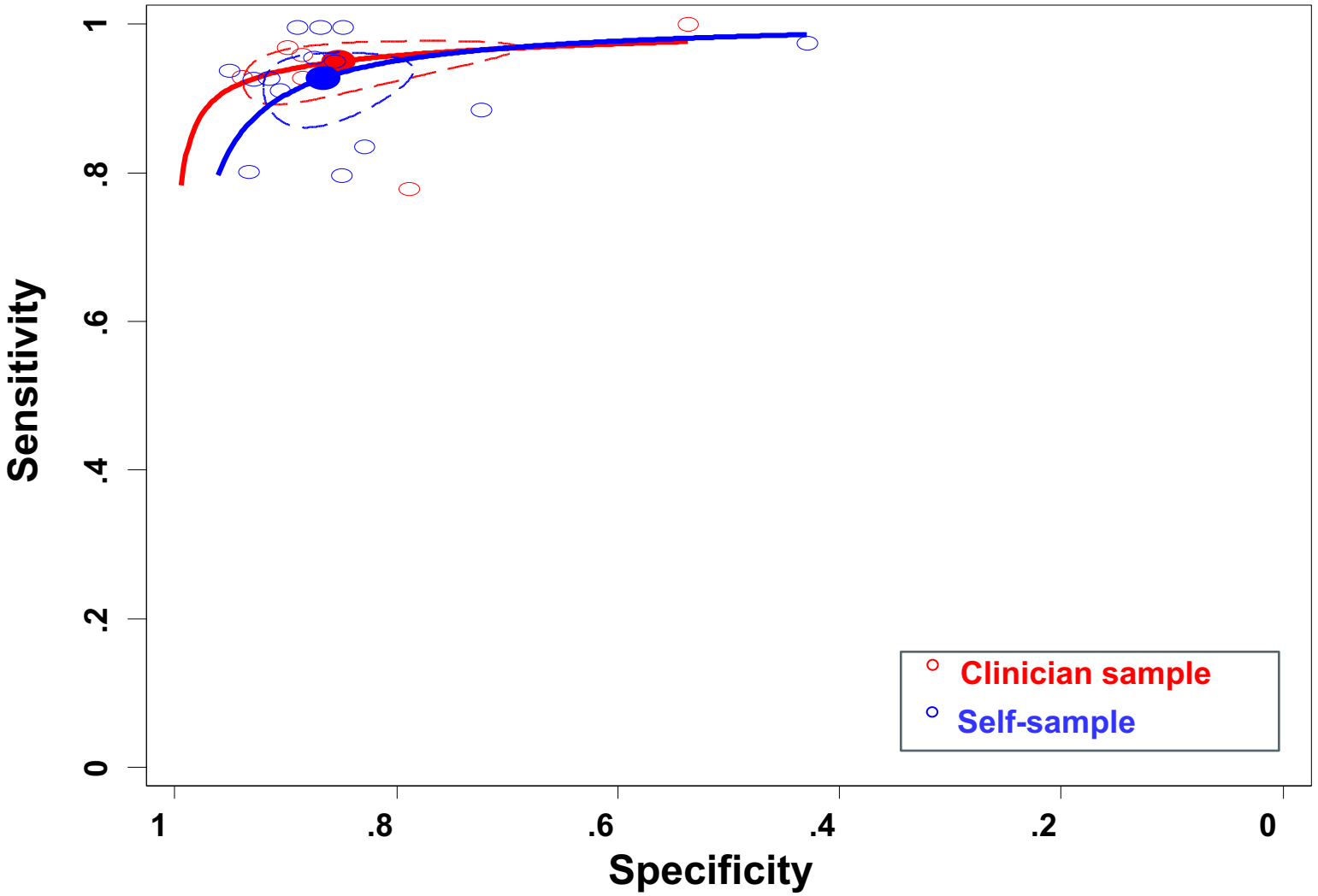
BMJ, 2018

Absolute accuracy for CIN2+ in screening studies

Clinically validated PCRs



Clin: Sensi: 0.95 (CI 0.92-0.97); Speci: 0.85 (CI 0.77-0.97)

Self: Sensi: 0.93 (CI 0.89-0.96); Speci: 0.86 (CI 0.81-0.90)

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BMJ, 2018

Conclusion: hrHPV testing on vaginal self-samples

- Updated meta-analyses corroborate previous conclusions
- Clinically validated PCR-based assays: similar sensitivity & slightly lower specificity on self- vs on clinician-taken samples
- Evidence robust for several devices, storage media, dry transport
- Need for formal validation rules & robust protocols for sample handling

Efficacy of offering self-sampling kits to reach un/under-screened women

BMJ, 2018 (December)

Detecting cervical precancer and reaching underscreened women by using HPV testing on self samples: updated meta-analyses

Marc Arbyn,[1] Sara B Smith,[2] Sarah Temin,[3] Farhana Sultana,[4,5] Philip Castle,[2,6] on behalf of the Collaboration on Self-Sampling and HPV Testing

Meta-analysis

Response if self-sampling kits offered vs control intervention among under-screened populations (ITT analysis of RCTs)

Scenario of invitation	No studies	Absolute participation		Relative participation (95% CI)	Participation difference % (95% CI)
		Self- sampling % (95% CI)	Control % (95% CI)		
Mail-to-all	19/21†	24.8 (21.6-28.1)	11.5 (8.3-15.1)	2.33 (1.86-2.91)	12.8 (10.4-15.1)
Opt-in	6/8†	17.7 (12.3-23.9)	13.4 (10.2-16.9)	1.22 (0.93-1.61)	3.3 (-0.7 to 7.3)
Door-to-door	4*	94.6 (83.0-99.9)	53.3 (10.5-93.2)	2.01 (0.66-6.15)	40.5 (3.0-78.0)

*also observed in Belgian trial where GPs offer a SS device to non-screened women (Peeters, Pap Vir Res 2020)

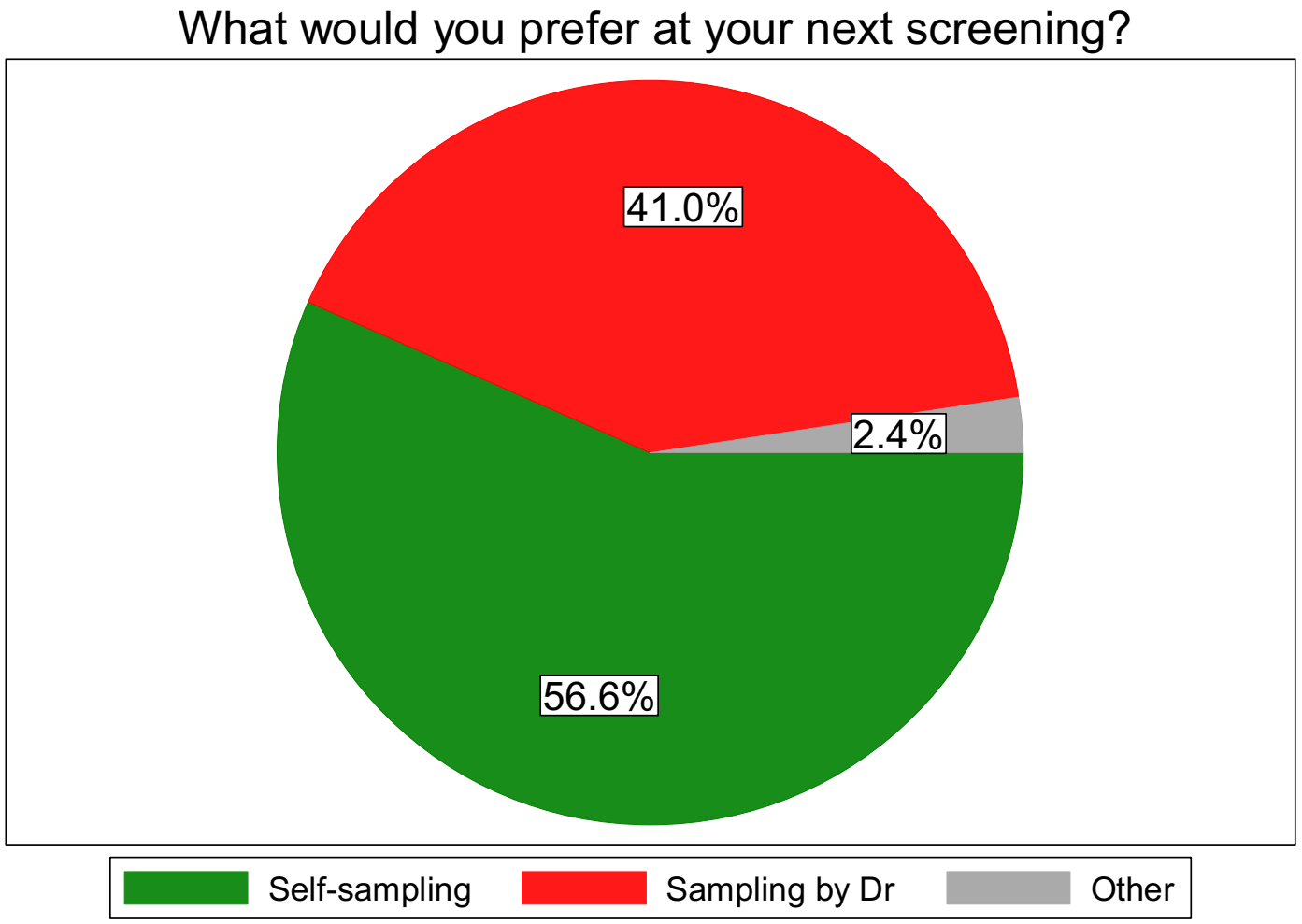
HPV testing on urine

VALHUDES (validation of HPV testing on urine & self-samples)

- **Comparative test accuracy study on 500 women enrolled at colposcopy clinics in BE**
- **hrHPV testing on urine collected with Colli-Pee as sensitive and specific for detection of CIN2+**

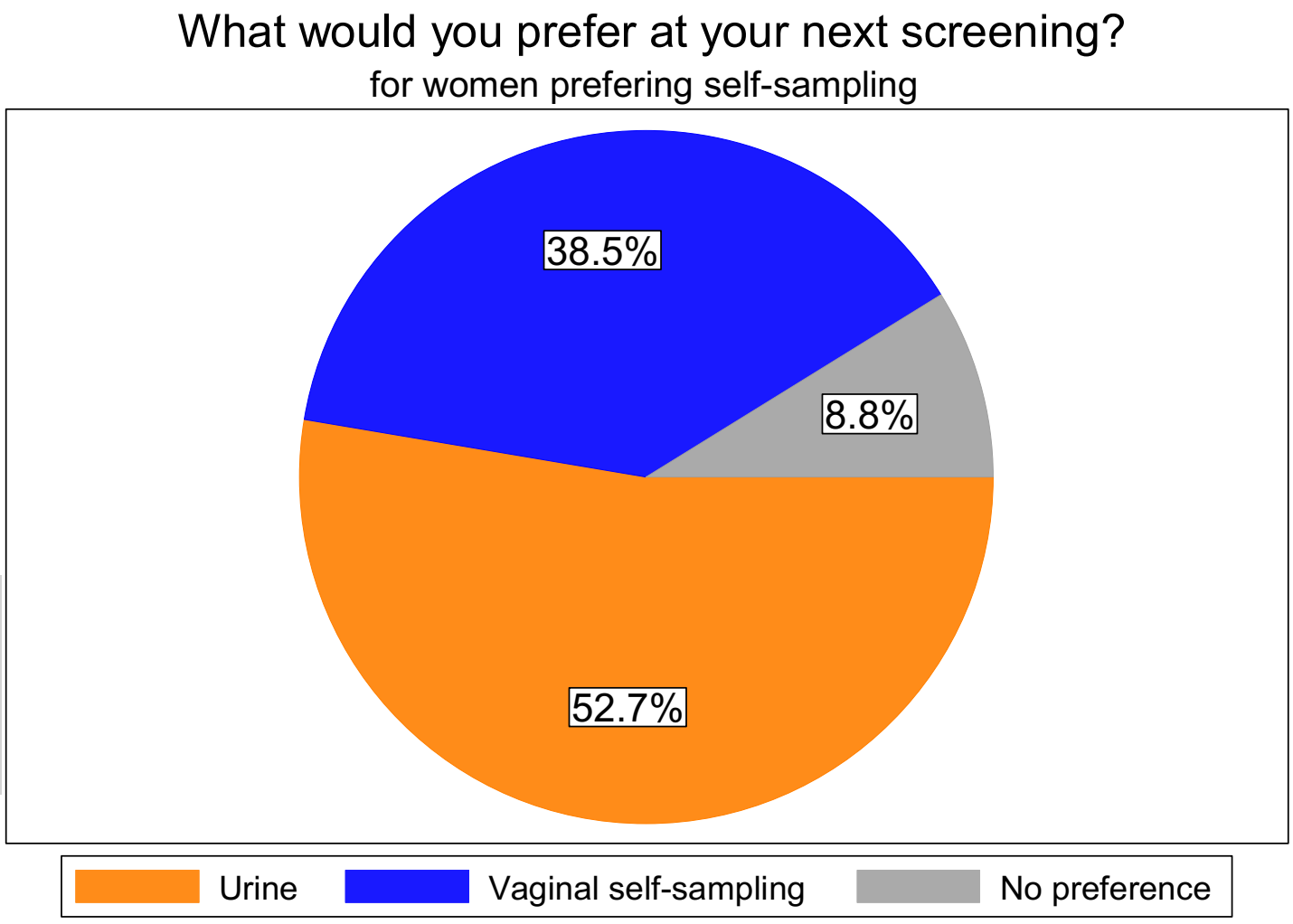
VALHUDES (questionnaire)

	N	%
Self-sampling	**283**	**56.6%**
Collection by Dr	**205**	**41.0%**
Other	**12**	**2.4%**
Total	**500**	**100.0%**
Missing	8	1.6%



VALHUDES (questionnaire)

	N	%
Urine	**149**	**52.7%**
Vaginal brush	**109**	**38.5%**
Both, no preference	**25**	**8.8%**
Total	**283**	**100.0%**
Missing	0	



Conclusion: offering self-samplers for HPV testing

- On general, sending self-samplers to women is more effective to trigger a response than mailing invitations to visit a clinical service
- Urine may become an additional user-friendly alternative for self-collection
- Response highly variable ~ local setting
- Follow-up of self HPV+ women must be assured
- Need for molecular triage methods avoiding necessity to contact a physician for cyto triage

HPV on self-samples & COVID-19

Impact of COVID-19 on CC screening

- **Interruption in spring-2020 of 88% of programmes (International Cancer Screening Network survey).**
- **HPV testing on self-samples recognised by European professional societies & international cancer organisations as a safe alternative collection for HPV testing in particular during the current pandemic (see recent publications IJC, Lancet)**
- **SS proposed as 1st strategy to reach women for the next screening in Sweden (M. Elfström, personal communication)**

Recent publications

The European response to the WHO call to eliminate cervical cancer as a public health problem

Marc Arbyn[1] | Murat Gultekin[2] | Philippe Morice[3] | Pekka Nieminen[4] | Maggie Cruickshank[5] | Philip Poortmans[6] | Daniel Kelly[7] | Mario Poljak[8] | Christine Bergeron[9] | David Ritchie[10] | Dietmar Schmidt[11] | Maria Kyrgiou[12,13] | Ann Van den Bruel[14] | Laia Bruni[15] | Partha Basu[16] | Freddie Bray[16] | Elisabete Weiderpass[16]

Int J Cancer 2020

"Tackling cervical cancer in Europe amidst the COVID-19 pandemic": Lancet PH 2020

Need to assure supply of validated HPV assays & equipment

Impact of COVID-19 on CC screening

- HPV on self-samples not approved by FDA
- Feldman suggested to use pathways followed for urgent approval of sars-CoV-2 IVDs to assess HPV screening on self-samples (J Natl Cancer Inst 2020)
- Validation protocols used for HPV-assay evaluation also translated for sars-CoV-2 assay evaluation (valCOR protocol)

Clinical validation of hrHPV DNA assays for screening

- 11 hrHPV DNA assays currently fully validated for screening using cervical specimen
- A few more assays are partially validated

Validation of HPV on self-samples

- **If**
  - **a) assay validated on cervical samples**
  - **b) at least similar sensi/speci for precancer on self- vs clinician samples**
  - **=> HPV on self-samples accepted for screening**

- **Extension protocol: evidence could be bridged to other devices/storage media based on test concordance**

Shortage of HPV-test assays & devices caused by COVID-19

- **Supply problems (devices, assays) noted in many countries (survey Am Cancer Soc Clin Microbiology)**
- **Might undermine the 70% screening coverage goal of the WHO-elimination initiative**
- **Crucial to validate alternative devices applicable for LMICs**

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- ESGO
- Belgian Foundation Against Cancer
- Gynaecological Cancer Cochrane Review Collaboration (Bath, UK)
- IARC, Lyon; WHO-Geneva