REVIEW OF SCREENING RECOMMENDATIONS FROM AROUND THE WORLD:

Perspective of the IFCPC

(International Federation for Cervical Pathology and Colposcopy)

Walter Prendiville, MD

IFCPC President

ASCCP2016

Disclosure of Conflict of Interest

- Utah Medical: received royalties as an inventor

- With thanks to Dr Rengaswamy Sankaranarayanan at IARC (International Agency for Research on Cancer in Lyon)

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IFCPC 2017 World Congress
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April 4-7, 2017 | Orlando, Florida

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NHS Cervical Screening Programme Colposcopy and Programme Management NHSCSP Publication number 20Third Edition March 2016

www.gov.uk/topic/population-screening-programmes

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Previous terminology (BSCC 1986)	**New terminology**
Borderline change	Borderline change in squamous cells
	Borderline change in endocervical cells
Mild dyskaryosis Borderline change with koilocytosis	Low-grade dyskaryosis
Moderate dyskaryosis	High-grade dyskaryosis (moderate)
Severe dyskaryosis	High-grade dyskaryosis (severe)
Severe dyskaryosis? Invasive	High-grade dyskaryosis ?Invasive squamous carcinoma
?Glandular neoplasia	?Glandular neoplasia of endocervical type
	?Glandular neoplasia (non-cervical)

Screening frequency

Age group (years)	Frequency of invitation
Under 24.5	No invitation
24.5	First invitation (to ensure that women can be screened for the first time by their 25th birthday)
25 to 49	Every 3 years
50 to 64	Every 5 years
65+	Invitation as required for women who have had recent abnormal tests. Women who have not had an adequate screening test reported since age 50 may be screened on request.

HPV testing

- In light of the evidence from the pilot and sentinel sites, national rollout of HR-HPV triage for women with borderline or low-grade cytology results and HR-HPV test of cure was completed in 2013.

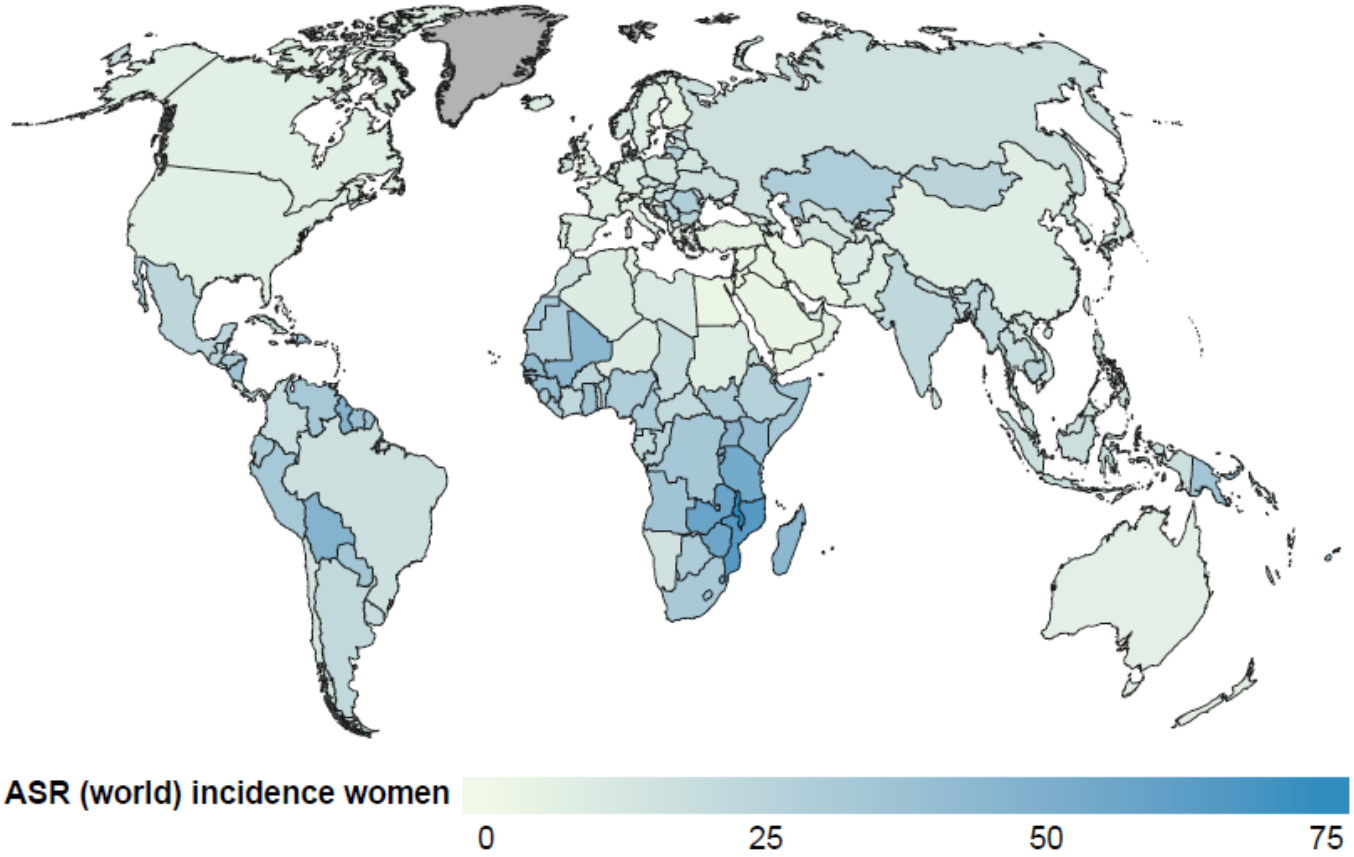
HPV as primary screening test

- Using HR-HPV as the primary screening test is an attractive option for countries with existing cervical screening programmes. HPV testing has the advantage of increased sensitivity and efficacy compared to liquid-based cytology, along with the potential for increasing the interval between screening rounds so that women need to attend less frequently if used as a primary screening test. It may also be a more appropriate screening test for vaccinated women. Following a trial, HR-HPV screening is being piloted at six sites across England to assess how this approach can be used across the programme as a whole.

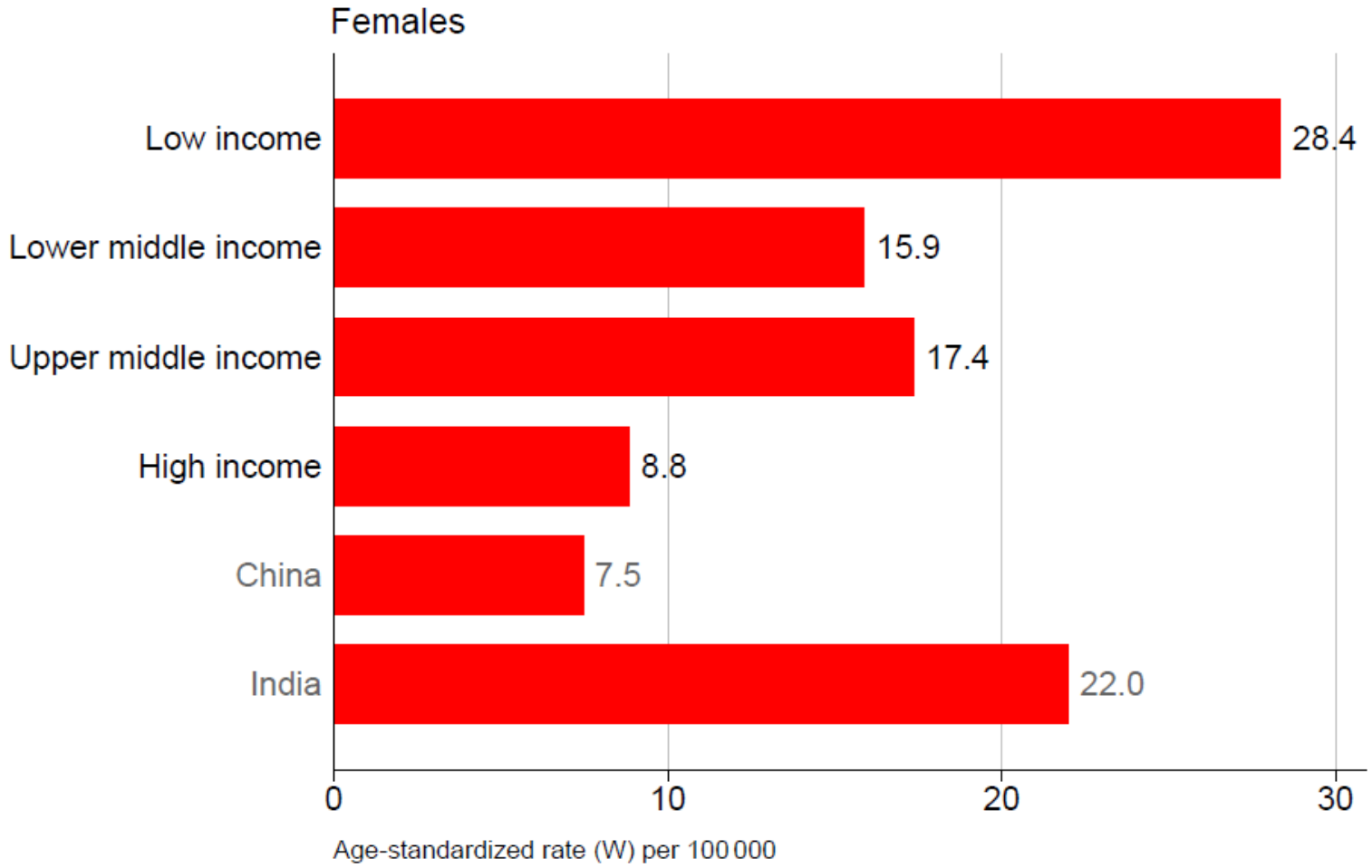
UK HPV testing data support

- **Evidence**: primary screening with HR-HPV testing generally detects more than 90% of all cases of CIN2, CIN3, and invasive cancer. HR-HPV testing is approximately 25% more sensitive than liquid-based cytology in detecting borderline changes or worse, though it is about 6% less specific.[Kitchener et al Lancet Oncology 2009]

Incidence of Cervix Cancer (2012)



Incidence of Cervix Cancer



Burden of cervical cancer

	Incidence		Mortality		Prevalence
Population	**Number**	**ASR (W)**	**Number**	**ASR (W)**	**5-year**
World	527,624	14.0	265,653	6.8	1,547,161
More developed regions	83,078	9.9	35,495	3.3	288,967
Less developed regions	444,546	15.7	230,158	8.1	1,258,194

Ferlay et al., GLOBOCAN 2012 v1.0, IARC CancerBase No. 11 [Internet]. IARC; 2013. Available from: http://globocan.iarc.fr

Global burden of cervical cancer

World	2010 (ASR)	2030
Incidence	528 000 (14.0)	710 000
Mortality	266 000 (6.8)	383 000
Prevalence	1 547 000	-

Less developed regions	2010 (ASR)	2030
Incidence	445 000 (15.7)	648 000
Mortality	230 000 (8.3)	363 000
Prevalence	1 258 000	

Ferlay et al., GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: http://globocan.iarc.fr, accessed on 05/05/2015.

What is the optimum screening method for cervical cancer in developing countries?

- Target population
- Screening test
- Frequency of screening
- Triage/diagnosis
- Treatment
- Follow-up care
- Evaluation of program impact
- Quality assurance

HAS TO BE MATCHED WITH RESOURCES!!

Target population

- Women aged 30-49 years
- Women aged 35-49 years
- Women aged 30-59 years
- Women aged 30-64 years

Screening

- Cervical cytology
- Visual inspection with acetic acid (VIA) /visual inspection with Lugol's iodine (VILI)
- HPV testing
- Organized Program *vs*. Unorganized/ opportunistic/sporadic initiatives

Performance characteristics of different screening methods

Screening test	Sensitivity	Specificity	Characteristics
Conventional cytology	Moderate (44-78%)	High (91-96%)	Requires adequate healthcare infrastructure; laboratory based; stringent training and quality control
HPV DNA testing	High (66-100%)	Moderate (61-96%)	Laboratory-based; high throughput; objective, reproducible and robust; currently expensive
Visual inspection method			Low technology; low cost
VIA	Moderate (67-79%)	Low (49-86%)	Linkage to immediate treatment possible; suitable for low-resource settings
VIAM	Moderate (62-73%)	Low (86-87%)	
VILI	Moderate to high (78-98%)	Low (73-93%)	

Sankaranarayanan et al., Int J Gynaecol Obstet. 2005;89 Suppl 2:S4-S12

Frequency of screening

- Single screen in life time
- Once in 10 years
- Once in 5 years

Link between screening (testing), diagnosis and treatment is critical for success of cervix cancer screening

Triage/ diagnosis

- Screen and treat in a single visit approach
- Colposcopy/biopsies
- Multiples visits

RTCOG)/JHPIEGO. Lancet. 2003;361(9360):814-20
Blumenthal et al., Am J Obstet Gynecol; 2007;196(4):407.e1-8
Sankaranarayanan et al., Int J Gynaecol Obstet; 2009;104(2):95-9

Alternative programmatic approaches

- Reduced frequency of screening: one or twice a life-time
- Reducing the number of visits and improving adherence to treatment
  - Screen and treat (1 or 2 visits)*
  - Screen, see (colposcopy), and treat (1 or 2 visits) (with a *posteriori* histological confirmation)**

*RTCOG/ JHPIEGO, Lancet, 2003; 361:814-20
** Sankaranarayanan et al., Int J Cancer, 2004; 109:461-7
* Denny et al., JAMA, 2005; 294:2173-81
*Sankaranarayanan et al., Br J Cancer, 2007;96:738-43
*Sankaranarayanan et al., Lancet, 2007;370:398-406

“Test and Treat” single-visit approach

- Combination of VIA or HPV testing and cryotherapy
- VIA-positive women or HPV testing with no clinical suspicion of invasive cancer receive cryotherapy without colposcopic/biopsy triage
- Large number of women without high grade CIN are screen+ve and get treated with cryotherapy/cold coagulation
- No data to indicate that cryotherapy/cold coagulation of women without CIN is harmful
- “over treatment” may provide “benefit”!

RTCOG/ JHPIEGO, Lancet, 2003; 361:814-20
Denny et al., JAMA, 2005; 294:2173-81
Blumenthal et al., Am J Obstet Gynecol, 2007;196:407.e1-8
Taylor et al. BMC Medicine 2010;8:40

The Cape Town Study: Magnitude of reduction in CIN 2 and 3 lesions at 36 months after HPV DNA or VIA based 'screen and treat' approach in South Africa

Characteristic	HPV screen-and-treat (N= 2163)	VIA screen-and-treat (N=2227)	Delayed evaluation control group (N=2165)
Cumulative frequency of CIN 2 and 3 lesions	29 (1.5%)	71 (3.8%)	105 (5.6%)
Rate ratio (95% CI)	0.27 (0.17-0.43)	0.68 (0.50-0.92)	1.0
Percentage of CIN 2 and 3 prevented (95% CI)	73 (60-85)	32 (11-53)	-

Denny et al., J Natl Cancer Inst. 2010;102(20):1557-67

Summary

- Screening is completely different in low resourced settings
- Screen and treat is applicable to LMICs *(and to advanced settings when there is a high suspicion of HSIL)*
- Hopefully HPV tests will come down in price and be accessible to most women globally
- Health service infrastructure is profoundly deficient in many LMICs

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