



Replacing Opportunistic with Organised Cervical Screening Lessons from the UK

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**Guy's & St Thomas' Foundation NHS Trust
Prague, Czech Republic, February 2008**

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Lessons from the UK and options for CR

Similarities between the UK in 1988 and CR in 2008

Brief graphic presentation of cancer rates as organised screening replaced opportunistic screening in the UK

Essentials of an organised screening programme

Principles enshrined in *EU guidelines for Quality Assurance in Cervical Cancer Screening* 2nd ed. Arbyn M et al. European Commission 2008

Options for CR

- Do nothing (probably not acceptable)**
- Improve screening coverage and quality control**
- Improve screening coverage and QC *and* take advantage of HPV testing and vaccination**

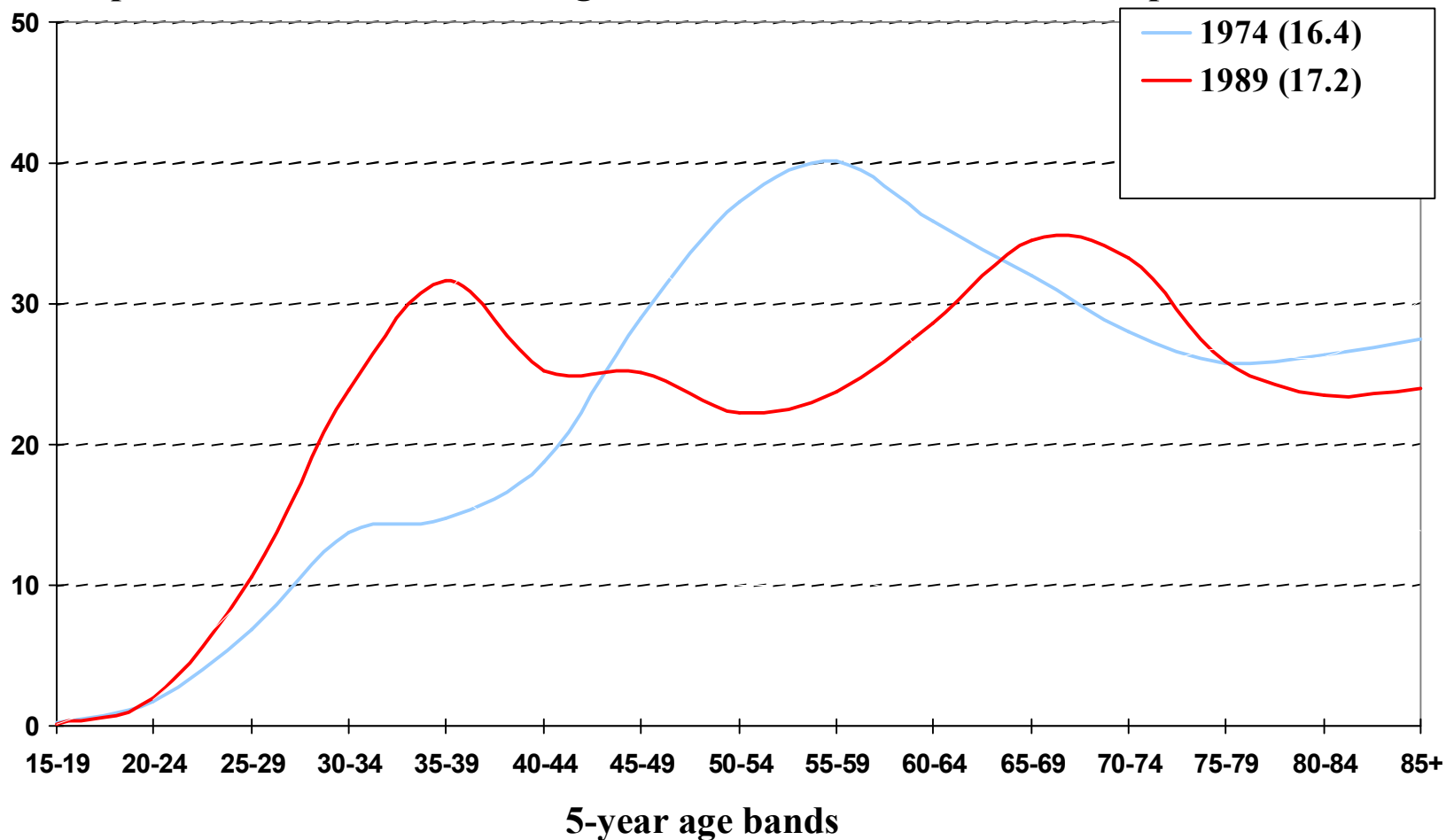
Similarities between UK in 1988 and CR in 2008

- **Incidence and mortality rates relatively static for preceding 20 (UK) and 40 (CR) years**
- **Cervical screening (free of charge) offered to selected age groups from 1967 (UK) 1966 (CR)**
- **Large numbers of Pap tests carried out opportunistically, mainly in young women**
- **Screening coverage (age 25-64) not known but believed to be 40% (UK) and 30-50% (CR)**
- **No national quality control system covering all aspects of screening**
- **Many women with cancer previously screened**
- **Increased risk of cervical cancer and its precursors across Europe in women born since 1940 (Bray et al)**

Incidence of invasive cervical carcinoma England 1974, 1989 (ONS data)

Rates per 100,000 women in each age band

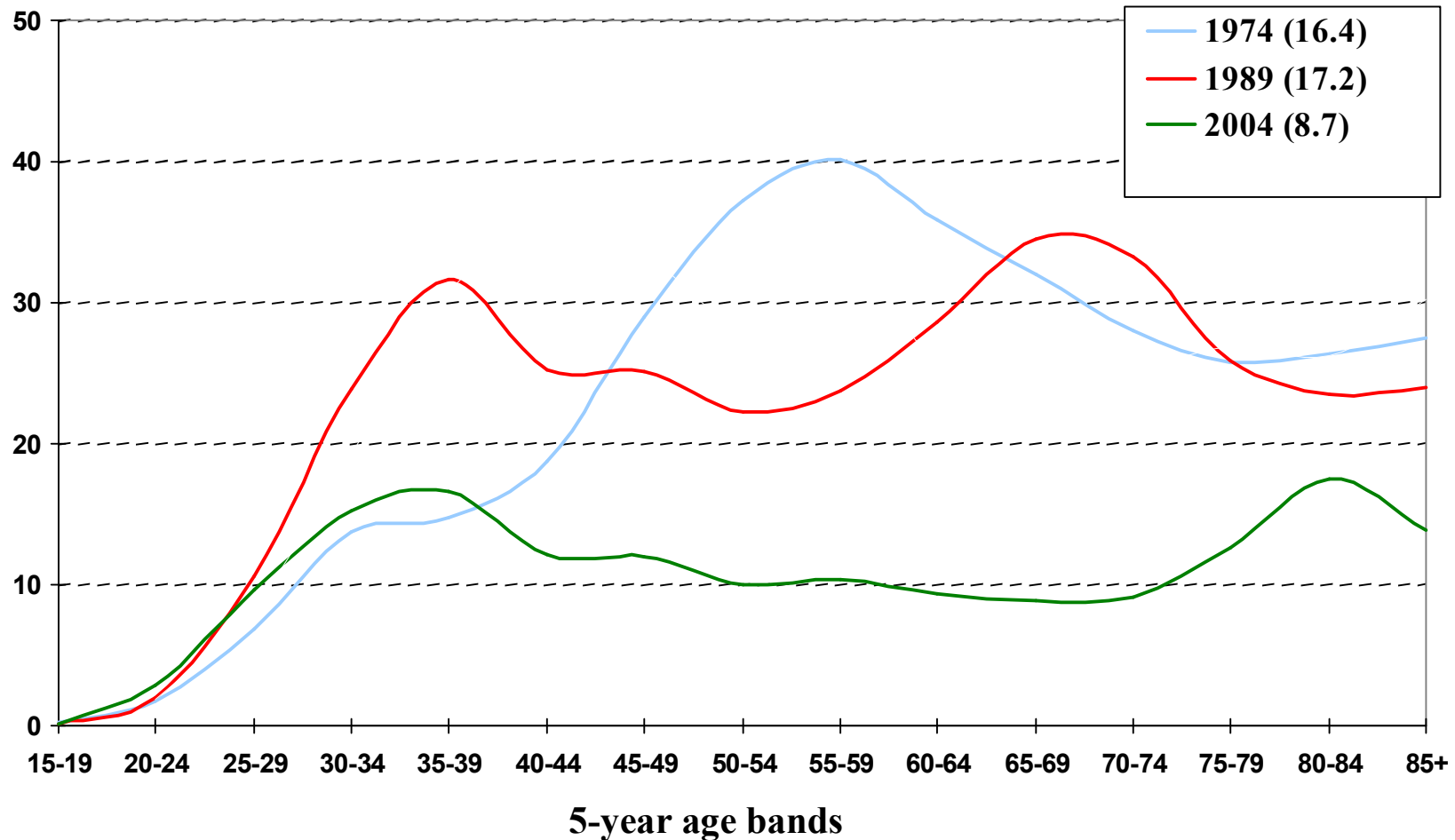
(n) = rate in year
per total 100,000



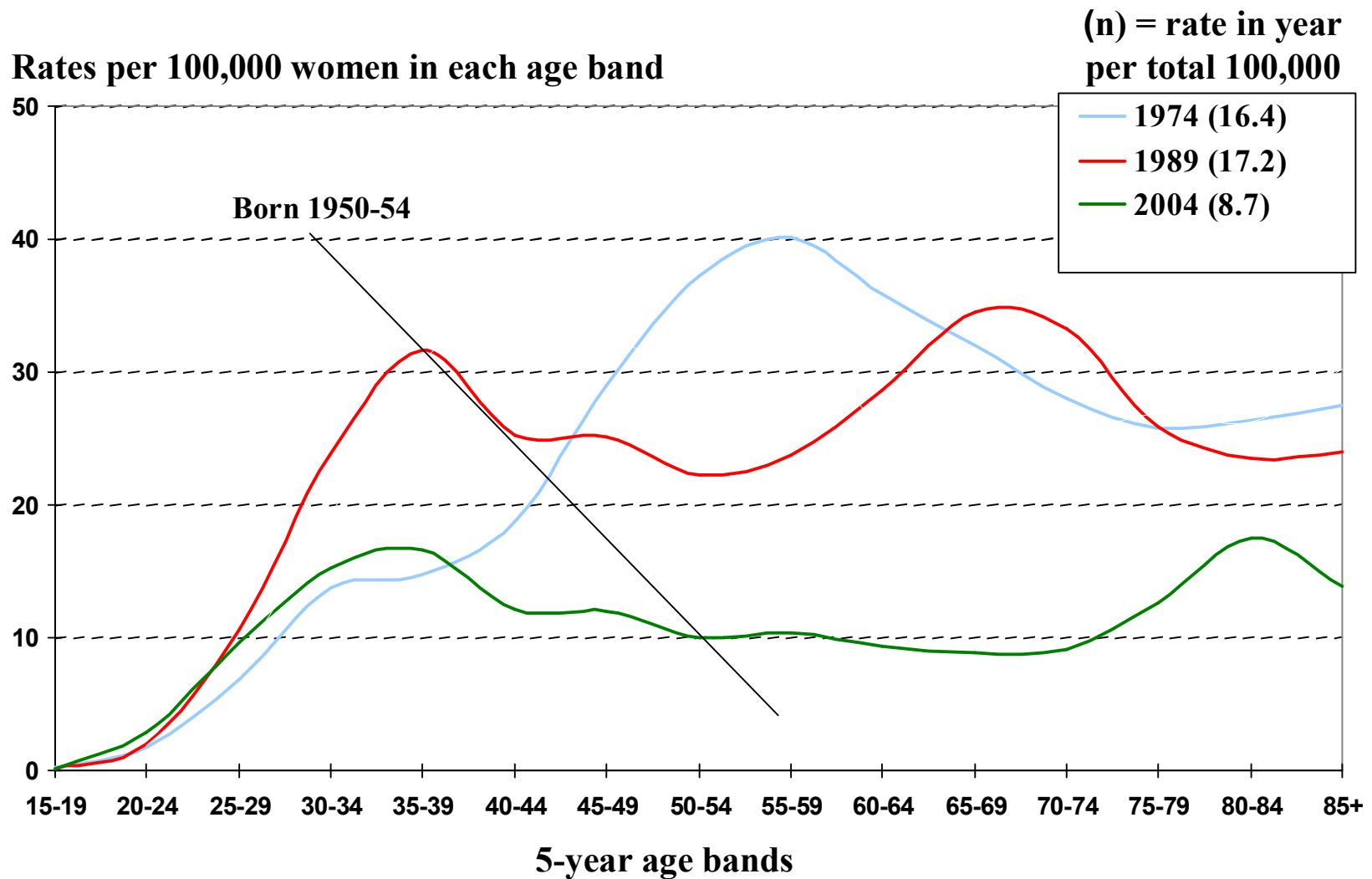
Incidence of invasive cervical carcinoma England 1974, 1989, 2004 (ONS data)

Rates per 100,000 women in each age band

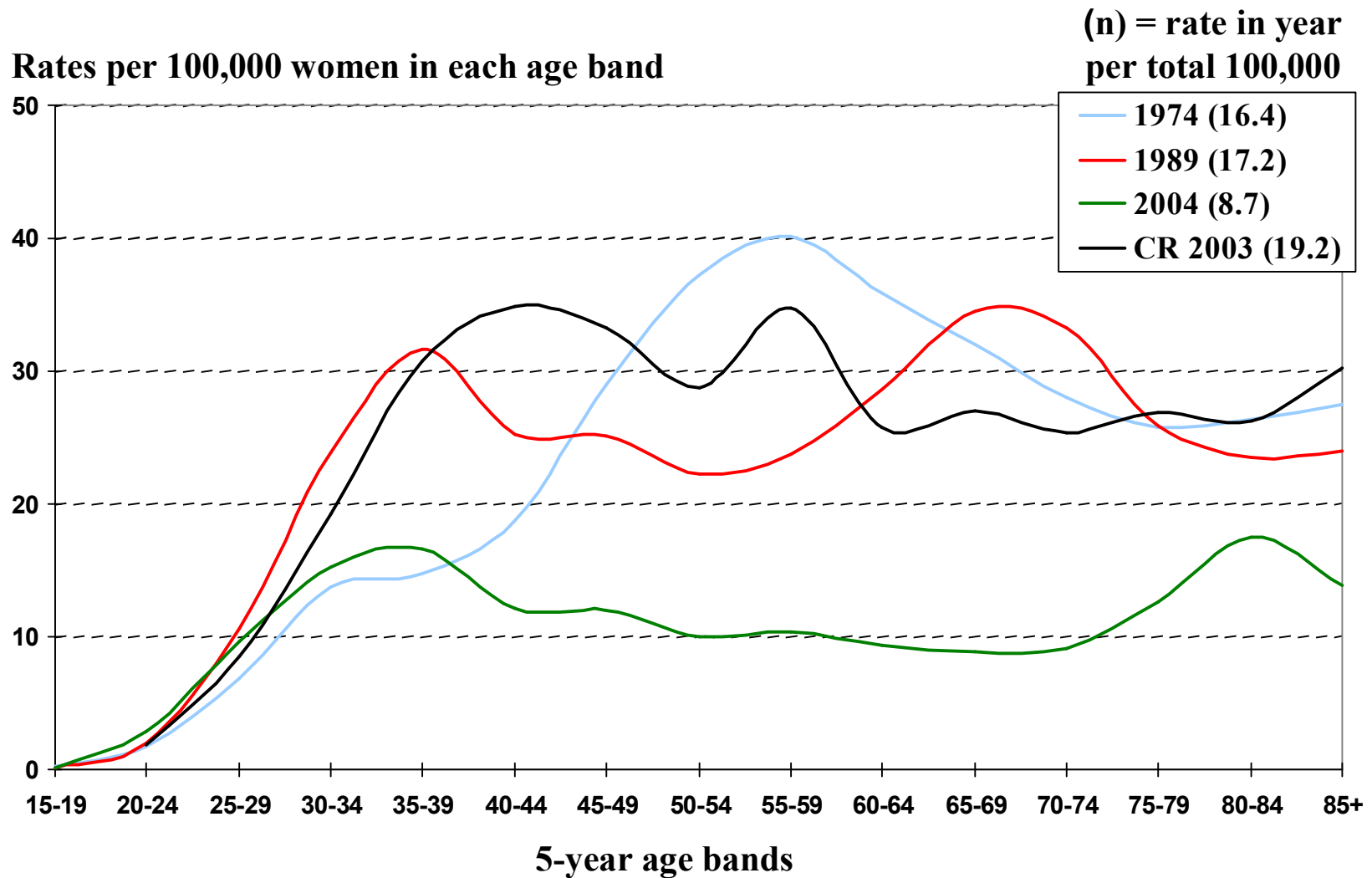
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Incidence of invasive cervical carcinoma England 1974, 1989, 2004 (ONS data)



Incidence of invasive cervical carcinoma England 1974, 1989, 2004 (ONS data) and CR 2003



Cervical screening in CR 2008

Bad news

- **Many cancers could have been prevented by increased screening coverage and improved quality control**
- **Organised screening is expensive and must be endorsed by all professional groups involved in the process**

Good news

- **Incidence and mortality would almost certainly be higher if there had been no opportunistic screening**
- **Comprehensive guidelines are now available and the EC encourages (and therefore helps) implementation**
- **New technologies are available in 2008 that were not available in 1988**

Quality assurance in cervical screening

Essentials

- **Centrally based infrastructure**
 - to invite women at risk at regular intervals
 - to monitor screening uptake and outcome of women eligible for screening
- **Primary care involvement**
 - to take the smears (with training and quality control)
 - to inform women of their results
 - to follow-up and initiate investigation of abnormalities
- **Well-equipped laboratories and colposcopy clinics with trained staff taking part in internal quality control (IQC) and external quality assurance (EQA)**
- **Good communication between all professional groups**
- **Standardised terminology**

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Standardised terminology

Register based on a population of women eligible for screening (local and national)

- **Vaccination uptake**
- **HPV detection**
- **Cytology screening uptake**
- **Cytology reporting rates (high-grade, low-grade, inadequate)**
- **Colposcopy findings / biopsies / treatment**
- **Biopsy results (CIN1-3, CGIN/AIS, cancer)**
- **Invasive cancers (screen-detected, symptomatic) in screened and unscreened women**

Age groups and intervals for screening

European guidelines, 2008

- Start between age 20 and 30; end age 65
- At least 5-yearly, not more than 3-yearly

NHSCSP guidelines for England, 2003

- 3-yearly age 25-49 (**Scotland & Wales** start age 20)
- 5-yearly age 50-64 (**Scotland** ends age 59)

US Preventative Services Task Force, 1996

- 3 years after starting sexual activity or age 21
- 3-yearly after first 2-3 annual smears
- End at age 65

Quality assurance in cervical screening

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Centrally based infrastructure

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to monitor screening uptake and outcome of women eligible for screening

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 - to inform women of their results
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Well-equipped laboratories and colposcopy clinics with trained staff taking part in internal quality control (IQC) and external quality assurance (EQA)

Good communication between all professional groups

Standardised terminology

**One of the commonest causes
of false negative cytology is
inadequate sampling of the
cervix by the smear-taker**

Quality assurance in cervical screening

Essentials

Centrally based infrastructure

- to invite women at risk at regular intervals
- to monitor screening uptake and outcome of women eligible for screening

Primary care involvement

- to take the smears / samples
- to inform women of their results
- to follow-up and initiate investigation of abnormalities

- **Well-equipped laboratories and colposcopy clinics with trained staff taking part in internal quality control (IQC) and external quality assurance (EQA)**

Good communication between all professional groups

Standardised terminology

**The effectiveness of screening
largely depends on primary
screeners' ability to detect
high-grade abnormalities**

Sensitivity of primary screening

Can be measured against final results after re-screening or pre-screening all slides (or all negative slides) before the result has gone out

- **Proportional re-screening (random 10%)**
- **Automated re-screening (100%)**
- **Rapid re-screening or pre-screening (90%+)**
- **Full re-screening (100%)**

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**The effectiveness of screening
also depends on the accuracy
of the pathologists' final results**

Accuracy of pathologists' cytology reports

- **Monitor personal and laboratory high-grade and low-grade reporting rates**
- **Measure positive predictive value of referrals for high-grade and persistent low-grade cytology**
- **Depends on (1) accuracy of histology reports and (2) availability of histology results for women with abnormal cytology tests**

The effectiveness of screening also depends on the effective treatment of high-grade pre-cancer

Monitoring colposcopy performance

- **Accreditation of colposcopy training and practice by gynaecologists**
- **Monitoring rates of detection and complete excision of high-grade abnormalities**
- **Guidelines for conservative management of potentially reversible low-grade abnormalities**
- **Multi-disciplinary discussion of discrepancies with cytology and management of equivocal cytology**
- **Procedures for follow-up and management of defaulters**

Options for CR

- **Do nothing (probably not acceptable)**
- **Improve screening coverage and quality control**
- **Improve screening coverage and quality control *and* take advantage of HPV testing and vaccination**

Vaccination and HPV testing

- **Cytology screening will still be needed for vaccinated women**
- **Vaccination will not affect current generations of sexually active women but will undoubtedly reduce levels of cancer and its precursors in years to come**
- **Primary HPV testing could substantially reduce the numbers of Pap smears (by more than 80%)**
- **Primary HPV testing would not reduce the demands for quality control - both for management of abnormalities and for providing confidence in negative cytology and / or colposcopy in HPV+ women**
- **HPV testing has its own problems**

Problems of primary HPV testing

- **Technology is rapidly changing - what is the best test?**
- **Existing tests detect transient as well as persistent HPV infection - and it is persistence that matters**
- **Hybrid capture 2 (HC2) is currently the only accredited test and is more sensitive than Pap smears - although, as with any test, it is not 100% sensitive**
- **Accurate cytology triage is needed as 60% of women with HPV detected by HC2 have no detectable cervical lesion - and must be managed by regular repeat tests**
- **HPV detection rates are high in the age groups in which pre-cancerous changes are most frequently detected and treated (age 25-35)**

Summary

- **Local cancer rates demonstrate a health problem that needs to be solved**
- **Mechanisms for inviting women for screening, monitoring outcome and quality control would be equally necessary whether or not HPV testing was the primary test**
- **The same would apply if vaccination was available**
- **Primary HPV screening could significantly reduce the number of women needing conventional Pap smears**
- **Without an organised infrastructure it would be impossible to evaluate the new technologies that are already changing cervical screening throughout the world**



Thank you for listening