NHSCSP proposals for cervical screening intervals

Comments and recommendations of Council of the British Society for Clinical Cytology

The following paper is written on behalf of BSCC Council to express our views on the new proposals for cervical screening intervals, which were announced by the NHSCSP at a recent press conference[1], and to comment on differences between our interpretation and theirs on the pathogenesis of high-grade cervical intra-epithelial neoplasia (CIN) and cancer. We are also concerned that the new screening intervals have already been published on the NHSCSP website www.cancerscreening.nhs.uk without prior consultation with the Regional Quality Assurance Committees or PCTs over the practical implications of their implementation.

New guidance for the frequency of cervical screening

The BSCC strongly supports the proposal for all women aged 25-49 to be invited for screening every three years and has advocated that policy for many years. The evidence that 3-year screening provides better protection than 5-year screening has accumulated over more than fifteen years[2,3,4]. The sensitivity of a single cervical cytology test is not sufficient to allow an interval as long as five years, especially in the age groups in which high-grade CIN is most frequently detected.

Screening women under 25

In the UK in 1998 CIN3 was diagnosed in 4,000 women aged 20-24, which was more than half the number in women aged 25-29 (the peak age group for CIN3)[5]. In both those age groups rates of CIN3 increased markedly between 1992 and 1998 even though screening coverage declined (see attached, Figure Three[6)]. Coverage is lower, and is declining more steeply, in women aged 20-24 compared with 25-29: 61% compared with 78% in 1998 and 53% compared with 75% in 2002 [6]. Any further reduction in screening women aged 20-24 could lead to an increase in invasive cancer in the following decades of life, and it should be remembered that between 1993 and 1997 the peak age group for invasive cancer was 25-39[4].

During the last decade in England, registrations of invasive cancer have not declined in women under 30 but they have steadily declined in women in their 30s and 40s, which could be reversed if women in their 20s were discouraged from being screened (Figure 1-3, data for cancer registrations in England taken from the Office for National Statistics[7)]. It would be discouraging, and indeed difficult to explain, that screening may do more harm than good under 25 but should be carried out 3-yearly thereafter.

Low-grade abnormalities in young women

The problem with screening young women is the high prevalence of low-grade abnormalities caused by infection with human papillomavirus (HPV). The great

majority of these lesions will regress spontaneously but they are not "false positives", as inferred in the NHSCSP announcement[1]. Low-grade lesions carry a risk of progression to high-grade CIN, and even cancer, if high-risk HPV persists[8]. Every effort should be made to manage women with these lesions conservatively, avoiding treatment and explaining the likelihood of the lesions resolving.

Screening women over 50

Women over 50 are at low risk for high-grade CIN and cancer if they have been previously screened[9]. The BSCC supports the proposal to extend the interval to (or maintain it at) 5-yearly in women over 50 as long as they have regularly been screened before that age. It would probably be safe to cease screening at 60 in previously screened women, as has been the policy in Scotland since 1987[10]. There is no reason to believe that screening is any more effective in women over than under 50, as inferred by the NHSCSP and Sasieni et al[1,4].

The effectiveness of screening

The primary aim of cervical screening is to detect and treat high-grade CIN, particularly CIN3, to reduce the risk of progression to invasive disease in subsequent years of life. More than 90% of CIN3 is detected in women less than 45 years of age[5]. Screening cannot be regarded as less effective in women under 40 just because incidence has not fallen in women in their 20s[4,11]. Furthermore, most cancers in women under 40 are detected by the test. In the national audit reported by Sasieni et al 34% of cancers in women aged 25-39 were microinvasive[4], which represent about half of screen-detected cancers[12].

Numbers of lives saved by screening

Members of BSCC hold the view that the NHSCSP and Department of Health consistently underestimate the number of lives saved by cervical screening to an extent that seriously undermines confidence in the test. It is simply not credible that as few as 1,300 lives are saved each year. Nearly half that number is probably saved by the detection of microinvasive cancers alone, which have a 5-year survival approaching that of CIN3. Throughout the 1970s and 1980s there were 4,000 cancers and 2,000 deaths. Now there are 3,000 cancers and 1,000 deaths. The relatively greater decrease in mortality is likely to reflect the increasing proportion of cancers that are detected early by screening, either as microinvasive or stage 1B cancers. Stating that no more than 1,300 lives are saved each year contradicts the evidence of increased risk of cervical cancer in women born during the 1940s, 1950s and 1960s (see attached Figure Thirteen [5] referring to papers by Quinn et al and Sasieni and Adams [13,14)]. That number of lives saved is also inconsistent with the known risk of progression of CIN3 to invasive cancer. More than 20,000 cases of CIN3 have been treated each year since 1988 and many thousands during the preceding twenty years[15]. Furthermore, nearly as many cases of CIN2 are treated each year, which substantially decreases their risk of progression to CIN3 or cancer.

The BSCC believes that the effectiveness of screening would clearly be demonstrated if a current, national invasive cancer audit was available, based on the categories of screening history recommended by the BSCC in 1995[16]. Relative risk in screened and unscreened women is only relevant to the category of women who have had negative smears in the past.

Everywhere else in the world cervical screening is recognised as preventing around 80% of invasive cancers, which is also likely to be the case in the UK and has been stated in previous NHSCSP publications. It is time that the public was informed that a highly effective screening programme has reversed a substantial increase in risk of disease: of a disease which would be a major public health problem in this country in the absence of effective screening.

BSCC proposal for screening intervals

The BSCC suggests the following modification to the NHSCSP proposal.

- Encourage women to be screened in their 20s, explaining that it reduces their risk of developing cancer.
- Advocate surveillance rather than treatment of low-grade cytological abnormalities in young women.
- Call women for screening at age 24 if they have not been screened before.
- Recall 3-yearly between 25 and 49.
- Recall 5-yearly between 50 and 60 if at least two tests have been negative during the preceding 10 years.
- Audit cervical cancers nationally following the recommendations originally published in ABC1[16]

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References

1. NHSCSP 2003. www.cancerscreening.nhs.uk

2. IARC working group on evaluation of screening programmes. Screening for cervical cancer: duration of low risk after negative results of cervical cytology and its implication for screening policies. Br Med J 1986;293:659-64.

3. Sasieni P, Cusick J, Lynch-Farmery E. Estimating the efficacy of screening by auditing smear histories of women with and without cervical cancer. Br J Cancer 1996;73:1001-5.

4. Sasieni P, Adams J, Cusick J. Benefit of cervical screening at different ages: evidence from the UK audit of screening histories. *Br J Cancer* 2003;89:88-93.

5. Cancer Reasearch UK 2003. CancerStats. Cervical cancer - UK.

6. Cancer Reasearch UK 2003. CancerStats. Cervical screening – UK

7. Office for National Statistics www.statistics.gov.uk

8. Gaarenstroom KN, Melkert P, Walboomers JMM et al. Human papillomavirus DNA and genotypes: prognostic factors for progression of cervical intraepithelial neoplasia Int J Gynecol Cancer 1994;4:73-8.

9. Cruickshank ME, Angus V, Kelly M, McPhee S, Kitchener HC. The case for stopping cervical screening at 50. Br Obstet Gynaecol 1997;104:586-9.

10. Scottish Health Service Planning Report on the Cervical Cytology Service in Scotland by an ad hoc group of the Histopathology Subcommittee of the Scientific Services Advisory Group of the Scottish Home and Health Department. 1987 Edinburgh.

11. Herbert A. The value of cervical screening to young women. Br J Cancer 2003 (letter, in press).

12. Herbert A, Singh N, Smith JAE (2001). Adenocarcinoma of the uterine cervix compared with squamous cell carcinoma: a 12-year study in Southampton and South-west Hampshire. *Cytopathology* 12: 26-36.

13. Sasieni P, Adams J. Effect of screening on cervical cancer mortality in England and Wales: analysis of trends with a birth cohort model. BMJ 1999;318:1244-45.

14. Quinn M, Babb P, Jones J, Allen E. The effect of screening on the incidence and mortality from cancer of the cervix in England: evaluation based on routinely collected statistics. *BMJ* 1999;318;904-8.

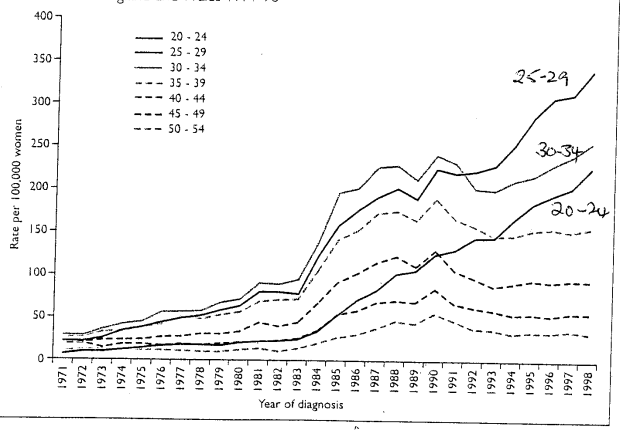
15. Herbert A. Cervical screening in England and Wales: its effect has been underestimated. Cytopathology 2000;11:471-9.

16. Herbert A, Johnson J, Patnick J et al. Achievable standards, benchmarks for reporting, criteria for evaluating cervical cytopathology. *Cytopathology* 1995; 6: Supplement 2.

screened for the first time) and cumulative incidence rates from the date of last screen for women who have previously attended for cervical screening. Also, CIS is asymptomatic and therefore cases can only be detected by screening. An increase in screening activity would then lead to an increase in registrations.

It has been shown that the registrations of CIS have broadly increased in line with the increase in the number of smears being undertaken [18]. However, it can be seen from **Figure Three** that since 1987 there has been a steady rise in CIS registrations in women aged 20-24 and 25-29, and an increase in women aged 30-34 since 1992, with no corresponding increase in the other age bands. The large increase in registrations that is visible in 1984 is due to the inclusion of CIN3 in the CIS

Figure Three: Age specific registrations of in situ cervical cancer in women aged 20-54, England and Wales 1971-98



[a] The International Classification of Diseases tenth revision (ICD10) code for carcinoma in-situ of the cervix is D06
[b] The ICD10 code for malignant neoplasm of cervix uteri is C53

A birth cohort effect is evident when a cohort experiences different disease patterns compared to people born immediately earlier or later than the cohort. For example, for women born at the end of the nineteenth century and around 1920 cervical cancer mortality was higher throughout their lives than for previous and subsequent birth cohorts. These two cohorts of women (with increased risk) would have become sexually active around the times of World War I and World War II. For birth cohorts after the mid 1920s until the mid 1940s the death rates are lower. The increased risk in women born after the mid 1940s is consistent with the changing sexual behaviour since the 1960s.

In the second half of the twentieth century the death rate from cervical cancer for women aged 55-64 dropped by nearly 80% from 30.0 per 100,000 in 1950-52 to 6.2 per 100,000 in 1998-2000 (see **Figure Fourteen** and **Table Two**). For all age groups some of this fall in mortality is due to increased screening activity.

It is likely that the declining trends in cervical cancer incidence will continue as the coverage of the screening programme improves and new techniques are developed for identifying pre-cancerous lesions. However, it is probable that the case mix of invasive cervical cancer will change as the proportion of adenocarcinoma increases and squamous cell carcinoma decreases. Mortality from cervical cancer is also likely to continue to fall as cancers are diagnosed at a pre-malignant, or early stage of the disease, and treatment regimens improve.

Figure Thirteen: Cohort effect graph for cervical cancer mortality (base year is 1922 = 1)