# The NHS cervical screening programme in England

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The aim of any Cervical Screening Programme (CSP) is to detect pre-cancerous changes to allow for treatment prior to the development of a true invasive cancer. For any screening programme to be effective (be it cervical or any other) the WHO criteria must apply: http://who.int/cancer/detection/variouscancer/en/

These are:
·Sensitivity: the effectiveness of a test in detecting a cancer in those who have the disease;
·Specificity: the extent to which a test gives negative results in those that are free of the disease;
·Positive predictive value: the extent to which subjects have the disease in those that give a positive test result;
·Negative predictive value: the extent to which subjects are free of the disease in those that give a negative test result;
·Acceptability: the extent to which those for whom the test is designed agree to be tested.
·The target disease should be a common form of cancer, with high associated morbidity or mortality;
·Effective treatment capable of reducing morbidity and mortality, should be available;
·Test procedures should be acceptable, safe, and relatively inexpensive.
·The frequency of screening and ages at which screening should be performed;
·Quality control systems for the screening tests;
·Defined mechanisms for referral and treatment of abnormalities;
·An information system that can:-send out invitations for initial screening;-recall individuals for repeat screening; -follow those with identified abnormalities;- monitor and evaluate the programme.

The UK has an organised CSP that runs in all four parts of the UK. The programmes do vary and may do so more as they evolve. This module will detail the English CSP but the details of each programme can be found on the respective national CSP websites.

https://www.gov.uk/guidance/cervical-screening-programme-overview

http://www.healthscotland.com/topics/health-topics/screening/cervical.aspx

https://phw.nhs.wales/services-and-teams/cervical-screening-wales/

http://www.cancerscreening.hscni.net/

Cervical screening has undergone significant changes with the development of a computerized call/recall system heralding the first organised mass screening programme in the UK. The development of national guidance and a Quality Assurance (QA) system with monitoring of published parameters followed. Liquid Based Cytology (LBC) was adopted, leading to fewer inadequate samples and the ability to test for high-risk HPV. In 2017 HPV testing became the primary screening method, with reflex cytology for positive cases.

## Quality and Guidance in the English Cervical screening programme

Prior to April 2013, the English CSP produced many guidance documents covering all aspects of the programme. In 2013, Public Health England took over leadership of the cervical screening programme, while responsibility for commissioning was consolidated to NHS

England. PHE authored programme standards and guidance documents, which are also used as the service specification by NHS England.

Since PHE was disbanded In October 2021, its health improvement functions have been transferred to the Office for Health Improvement and Disparities, NHS England, and NHS Digital. Quality assurance aims to achieve and maintain national standards, promote continuous improvement in cervical screening and support reducing health inequalities, supported by the NHS England Screening Quality Assurance Service (SQAS).

The professional guidance documents are available on line at:

https://www.gov.uk/government/collections/cervical-screening-professional-guidance

**Cytology Reporting**
The reporting of cervical samples must be by suitably qualified cytologists and using agreed national terminology. The cytology system used is detailed in national guidance, using the BSCC (British Society for Clinical Cytopathology) nomenclature.

https://www.gov.uk/government/publications/cervical-screening-laboratory-hpv-testing-and-cytology-services/cervical-screening-guidance-for-laboratories-providing-hpv-testing-and-cytology-services-in-the-nhs-cervical-screening-programme

This uses the following accepted cytological terms:

- Inadequate
- Negative
- Borderline changes in squamous cells
- Borderline changes in endocervical cells
- Low grade dyskaryosis
- High Grade dyskaryosis (Moderate)
- High Grade dyskaryosis (Severe)
- High grade dyskaryosis ?invasive squamous cell carcinoma
- ?glandular neoplasia of endocervical type
- ?glandular neoplasia (non-cervical)

Any women with an abnormality must have the appropriate action taken in line with the national CSP protocol. The action required will depend on the combined HPV and cytology result, if performed.

The screening protocol in summarised at:
https://www.gov.uk/government/publications/cervical-screening-care-pathway/cervical-screening-care-pathway

The majority of women attending colposcopy are referred with abnormal cervical screening samples. However, typically 17-20% may be referred for non-cytological clinical reasons, such as suspicious symptoms (e.g. post coital bleeding, painful intercourse), abnormal appearance of the cervix, difficulty obtaining a cervical sample (stenosed cervical os, pain on sample taking), or persistent inadequate cervical samples. In these cases biopsies or even excisional biopsies may be taken, but the same histological reporting principles apply.

**Colposcopy**
Colposcopy is an inspection of the cervix by a trained person using a visual magnifying device (colposcope). There are changes that can be seen by the naked eye but some are made more obvious by the application of acetic acid or iodine. Areas that react with the application of acetic acid are termed acetowhite. In general terms these reflect changes in the squamous

epithelium that may represent pre-cancerous changes, but they can also represent benign changes unassociated with any neoplastic process. Identification can be aided by the use of ancillary devices such as DySIS and ZedScan.

https://www.nice.org.uk/guidance/dg32

Pre-cancerous changes mostly arise in the area of the transformation zone (TZ) of the cervix. This is the area where the normal relatively sensitive endocervical glandular tissue is undergoing metaplastic change to a more robust squamous epithelium. Both types of epithelium are found normally in the cervix, and where they meet is termed the squamo-columnar junction (SCJ). The position of the SCJ varies with a woman's age and hormonal status.

http://screening.iarc.fr/colpochap.php?chap=1

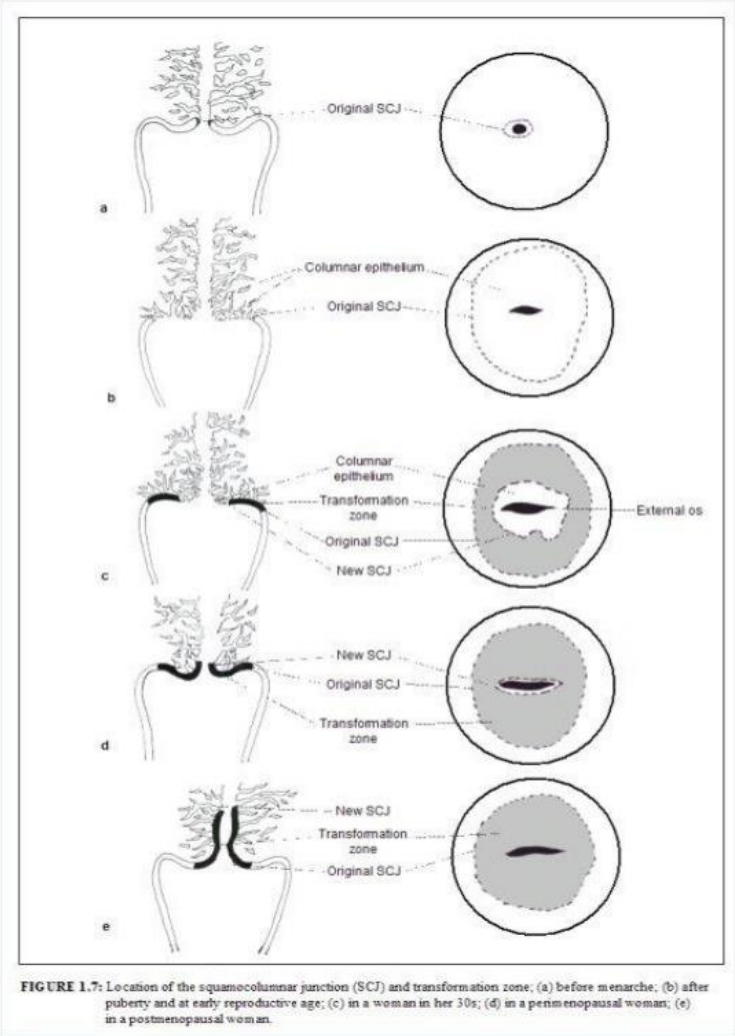
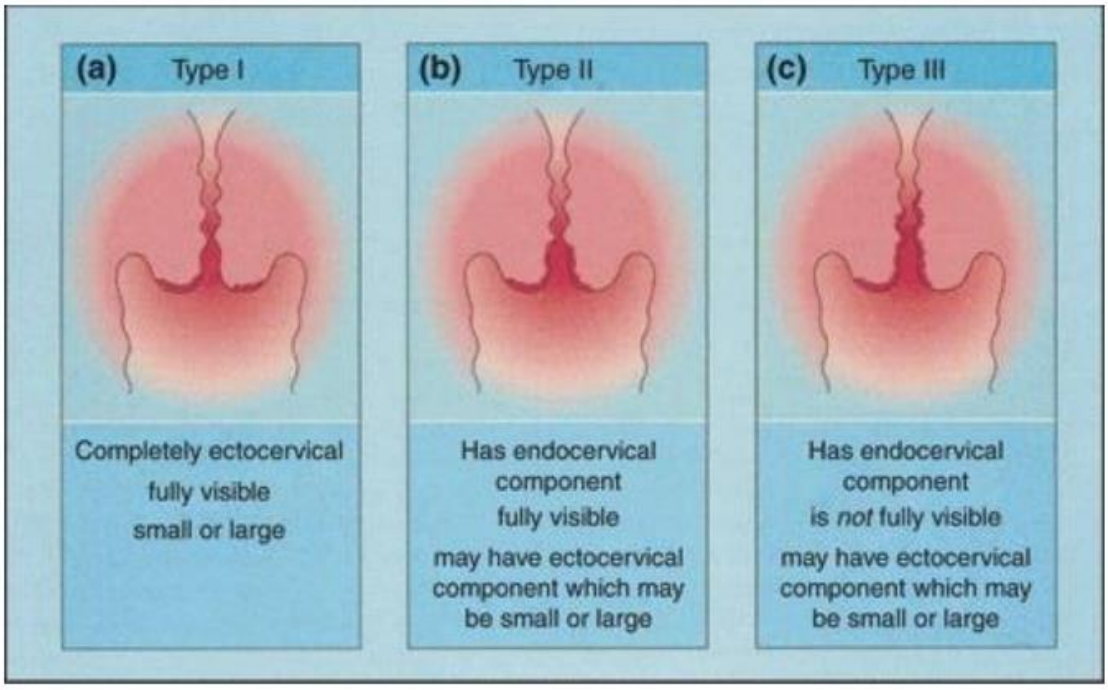



FIGURE 1.7: Location of the squamocolumnar junction (SCJ) and transformation zone; (a) before menarche; (b) after puberty and at early reproductive age; (c) in a woman in her 30s; (d) in a perimenopausal woman; (e) in a postmenopausal woman.

At colposcopy the inspection is of the TZ and of the SCJ. If the whole TZ can be seen as well as the SCJ then the area where most cervical neoplastic change is likely to occur will be visible and will be amenable to biopsy and/or treatment.

Colposcopy classifies the inspection of the cervix as:




In general terms, if the referral indication for colposcopy is of high grade cytology and the area of the TZ and upper limit of the SCJ can both be seen, then excision of the abnormal area, aided by the use of acetic acid and iodine, can be undertaken. This is usually by a large loop excision of the transformation zone (LLETZ). If the area can not be fully seen and/or the upper limit of the SCJ cannot be confidently identified a LLETZ may still be undertaken but is potentially less likely to remove all of any abnormal area that may be present. If the colposcopist is uncertain of the appearances, or has doubt, then biopsies may be taken. These may be random of the TZ or directed to a specific abnormality seen at colposcopy. The biopsies may be single, or multiple, depending on the changes seen and/or the size of the area of the TZ.

From national statistical returns for England the reasons for referral and treatment methods used can be found at:

https://digital.nhs.uk/data-and-information/publications/statistical/cervical-screening-annual/england-2021-2022/section-3-colposcopy

**Histopathology Reporting and Colposcopy Correlation meetings**
The reporting of histological material taken for the CSPs should comply with national guidance and terminology. This allows for consistent reporting and use of ancillary tests. Those reporting histology derived from the CSP must report at least 150 specimens per year. Most cases will agree in that the referral HPV/cytology result will, after colposcopy inspection, biopsy and histology, find an acceptable cause for the identified abnormality. Cases where there is a lack of correlation require discussion with input from histology, cytology and colposcopy. There should be regular audit of cases put onto the MDT discussion

Cases that require discussion can be found in CSP Guidance, see:
https://www.gov.uk/government/publications/cervical-screening-histopathology-reporting-handbook

and

https://www.gov.uk/government/publications/cervical-screening-programme-and-colposcopy-management/3-providing-a-quality-colposcopy-clinic

and
https://www.britishcytology.org.uk/uploads/files/BAC-recommended-code-of-practice-for-cytology-laboratories.pdf

and
https://www.gov.uk/government/publications/cervical-screening-laboratory-hpv-testing-and-cytology-services/cervical-screening-guidance-for-laboratories-providing-hpv-testing-and-cytology-services-in-the-nhs-cervical-screening-programme#clinical-governance

Cases for discussion should include (but are not limited to):

• All cases where a high-grade cytology opinion (including ? invasion) is not confirmed by histology
• All cases of a cytological endocervical abnormality (borderline change in endocervical cells, or ? glandular neoplasia) together with those where CGIN and SMILE are identified on histology
• Cases where clinical management or follow up requires clarification
• All cases of CIN2 for consideration of conservative management
• All cases where further management of individuals who have had 2 previous cervical treatments is required
• All cases of invasive cervical cancer (for audit and disclosure purposes)

The following cases do not need MDT discussion:
• Cases with high grade CIN where the referral cytology was low grade
• Cases where a previous biopsy confirmed CIN but a subsequent excisional sample is negative; (the BAC has recommended that a review of the previous biopsy should be undertaken and commented upon in the excisional sample report)
• Cases of incomplete excision of CIN on a large loop excision of the transformation zone (LLETZ) where this would not affect clinical management

Guidance exists as to the format, frequency and principles and practice of these meetings. It also states that all those involved (cytologists, histopathologists and colposcopists) must attend a minimum number of such meetings a year (three for histopathologists).

It must be remembered that there are multiple variables interacting in any screening case. These are the screening test used (HPV and cytology), colposcopy and histology. Each has a different sensitivity and specificity, and false positive and false negative rates. As such, any or all of these may come into play in any particular case, and more so in a case with no apparent correlation. This emphasises the need for good quality measures in all areas, and the need to review any cytology and histology prior to discussion at a colposcopy correlation meeting.

A cervical screening test result should represent a minimum expected level of change pathologically. A result of HG dyskaryosis would be expected to identify a similar HG CIN result in approximately 65-85% of cases. Whilst a result of Borderline or LG squamous dyskaryosis may correlate with reactive changes, viral changes or LG CIN, it may also harbour HG CIN. This applies also to endocervical glandular changes.

In some cases cancer will be detected, either based on abnormal cytology/colposcopy or found incidentally on a biopsy or LLETZ sample. In many cases, the cancer will be small and early. In many cases the LLETZ itself may have adequately treated the cancer and the woman

may not require any more treatment but would require follow up. Larger cancers, if found, may require more extensive surgery and/or radiotherapy/chemotherapy. All cervical cancers must be discussed at a cancer MDT as well as the colposcopy correlation meeting, and would be subject to audit in line with the recommendations of the relevant national CSP cervical cancer audits. Gynaecological cancers are usually staged using the FIGO system.