Human Papillomavirus (HPV), Cervical Screening and Cervical Cancer

CLINICAL PROFESSIONAL RESOURCE

Acknowledgements

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Contents

It is recognised that services are provided by registered nurses and midwives, health care support workers, assistant practitioners, nursing associates and student nurses and midwives, and trainee nursing associates. For ease of reading, the generic terms ‘nurse’, ‘nursing’ and ‘nurses’ are used throughout this document.

The RCN recognises and embraces our gender diverse society and encourages this guideline to be used by and/or applied to people who identify as non-binary, transgender, gender fluid or intersex who have a cervix. The RCN also recognises that not all those born female or male will identify with the same gender pro nouns, but for ease of reading and brevity this document uses the term woman/women and includes those with a cervix.

1. Introduction

Worldwide, cervical cancer is one of the leading causes of death from cancer in women; most deaths occur in low to middle income countries (WHO, 2022). Cervical cancer accounts for 2% of all new cancer cases in females in the UK (Cancer Research UK, 2023a), and is, generally, a preventable disease. The primary cause of cervical abnormalities and cancer is persistent or chronic infection with one or more of the high-risk ( ) types of human papillomavirus (HPV). In most women and men who become infected with HPV, these infections will resolve spontaneously (without treatment). However, for a minority of women, the infection leads to abnormal changes to the cervix, which, if not treated, may progress to cancer 10 to 20 years later (WHO, 2022). Both understanding and identifying HPV are important public health concerns and form part of the UK National Screening Programme (DHSE, 2023).

In order to support informed and sensitive care of women, this RCN publication focuses on:

- an overview of HPV (including the current vaccination recommendations)
- the national cervical screening programmes
- information about colposcopy
- key facts on cervical cancer.

Registered nursing associates training in cervical sample taking (England only)

In 2019, the NHS Screening Programme announced that registered nurs tional cerrp uche e 8 (s6-5)6.7

To undertake cervical screening, nursing associates must have:

- completed a nursing associate qualification and be registered as a NA with the Nursing and Midwifery Council (NMC)
- undertaken initial theory and practical training as required by the NHS CSP, successfully completed the course and assessed as competent
- undertaken update training and maintained competency in line with national cervical sample taker training guidance.

Local governance: the registered nursing associate role is not yet a named profession under the Treatment of Disease, Disorder or Injury (TDDI) legislation regulated by the Care Quality Commission (CQC). However, the CQC expects any provider to consider safety, quality, competency and TDDI legislation when deploying a nursing associate. See the CQC briefing for providers at:

When a nursing associate has registered with the NMC, a registered professional listed under the legislation (registered nurse or GP) will need to supervise the practice of that nursing associate. The supervisor must be present at the GP practice when the nursing associate is carrying out the procedure. The supervisor can undertake indirect supervision of the nursing associate when carrying out this procedure. This is a delegated activity and the nursing associate would be expected to work within the remits of their professional code.

NHS England/Improvement, Health Education England and PHE are working together to follow a test cohort of registered nursing associates to undertake cervical sample taker training. This evaluation will help make sure that the new profession of registered nursing associates can support primary care and health services to deliver this aspect of care. Any lessons learnt from the evaluation will be incorporated into the training guidance and communicated to providers by NHS England's primary care nursing team and PHE screening (Public Health England, 2019).

The RCN subsequently published a positiw proi13Tu3o5(he3 ()12/TT]TJ Tf2 (0(n)Tc)1.8 (o)-6.3 (9 (3.3 (1(

2. Human papillomavirus (HPV)

HPV is a common sexually transmitted infection and the HPV family of viruses contains more than 200 types. Some cause benign skin warts or . Approximately 40 HPV types affect the genital area. They can be subdivided into those that are low risk for cervical cancer (including HPV 6 and 11, which are also responsible for some genital warts) and those which are high risk for cervical cancer (including HPV 16 and 18) are responsible for approximately 70% of cervical cancer (WHO, 2014b).

HPV is a normal consequence of having sexual activity and is common regardless of sexual orientation (sexual orientation is not necessarily indicative of who people have sexual intercourse with; HPV can be passed between same sex partners and heterosexual partners). Anyone who has ever had sexual contact including penetrative, anal or oral sex, genital to genital touching or sharing sex toys (with a man or woman) is at risk of HPV infection. Evidence suggests that around 80% of unvaccinated women who have had sexual intercourse have a lifetime risk of becoming infected with one or more of the sexually transmitted HPV types (WHO Europe, 2017). The infection is often transient and will clear naturally. However, in a minority of women it can become persistent and this may lead to changes to the cells of the cervix or to cervical abnormalities known as (CIN) – the abnormal growth of precancerous cells in the cervix (see Types of cervical cancer, in section 5 on).

Risk factors

While high-risk HPV is the cause of 99.7% of all cervical cancers, factors have been identified that may increase the risk of developing the disease.

- Exposure to (DES), a man-made (synthetic) form of oestroe h 0 0 11 71.2191 (t a)9.4 ((

cancer. Women who have been exposed to diethylstilbestrol in utero should have an initial colposcopic examination but if no abnormality is detected only routine cervical screening is required as per NHSCSP document 20.

- Oestrogen and progestogen contraceptives (10% risk).[1]
- Human immunodeficiency virus type 1 (HIV-1).
- Non-attendance for cervical screenings (smear test).
- Increased exposure to the virus (sexual intercourse/number of sexual partners).
- Those vulnerable to infections or less able to fight them off (by affecting the body's immune response).
- Smoking.
- Not having the HPV vaccine.

(Cancer Research UK, National Cancer Institute (2021), and Jo's Cervical Cancer Trust, 2016)

Cancer Research UK (2023b) suggests that there is a 15% higher risk in women who have had a full-term pregnancy compared with those who have not, and the risk among childbearing women is 64% higher in those with more than seven full-term pregnancies, versus those with one or two. The reasons for these associations are as yet unknown. There is also evidence to suggest that the risk could be as much as 77% higher in those under 17 years of age at their first full-term pregnancy (compared with those aged 25 or older). There is also evidence to suggest that an increased number of sexual partners, and

The HPV vaccination programme was introduced in the UK in September 2008 for girls aged 12 to 13 years and in school year 8 (or from the age of 11 in Scotland). The vaccination

4. Cervical screening

The national cervical cancer screening programme is currently offered to women aged 25 to 64 and uses aprimary HPV test, the examination of cells under a microscope (UK National Screening Committee, 2016b). In England, Scotland and Wales HPV is primary screening, NI will commence this in 2023. The sample is acquired via cervical screening, which is conducted by a doctor or a registered nurse/midwife. In England this role has now been extended to include registered nursing associates (PHE 2019). The test involves taking a small sample of cells from the cervix to check for abnormalities. Since the introduction of the NHS computerised call and recall cervical screening system, the majority of cervical samples are now undertaken in a primary care setting. Wales, England and Scotland all now use HPV primary screening. As part of this move, Scotland and Wales now invite women with previous clear results every five years, regardless of age.

Cervical Screening Wales changed to testing for high-risk types of Human Papillomavirus (HR HPV) as the primary cervical screening test in September 2018. All samples submitted to Welsh laboratories are tested for HR HPV. Further tests and management will depend on the HR HPV result. Women who have no HR HPV detected are issued with a negative result, they do not have cytology.

Women who have HR HPV detected will have cytological assessment of the sample. If the cells appear normal, they are usually advised to have a repeat test after 12 months. If the cells are abnormal, they will be referred for colposcopy.

National Cervical Screening Programme

Throughout this guidance, all national programmes (England, Wales, Scotland and Northern Ireland) are referred to as the National Cervical Screening Programme (NCSP).

The NHS NCSP websites contain contemporary guides, resources and guidance for good practice in cervical screening:

- England
- Wales
- Scotland
- Northern Ireland

The RCN and the UK National Screening Committee (UK NSC) believe that all registered

- there should be an effective means of identifying and contacting the whole cohort to be offered screening
- the population should be proactively approached (by written invitation, verbal invitation at the time of the contact with the health service, encouraging attendance for screening) to ensure that those offered screening would be properly informed of the potential benefits and risks in order to help make an informed choice
- the primary purpose of screening should be te scfT1 -(u)2 (ro. (t)7 (4)15.8 (he p(l)19 (d b83.8 (r.1 (s)6.6 (fo (t)7 (t)26.7 (e(a)5.3 (c)1c)4.2 (9Tw 0 -9( )TjEM5 C ( )Tk)35.1 (.2 (t)910.8 (10.3 s m) (r) s m) (r)e a b(c)46

Key findings supporting the UK NSC recommendations

- The HPV vaccination offered to girls aged 12 to 13 strengthens the rationale for primary HPV screening. The vaccination will offer prevention of HPV and result in a falling number of women who remain at risk of [contracting] HPV and developing cervical cancer.
- A primary test for HPV will save more lives by determining a woman's risk earlier. Work to assess extending the screening interval with HPV screening is ongoing, which has already been extended in Wales and Scotland and is about to be in England. This will follow once confirmatory pilot data and other international evidence is reviewed by the UK NSC.
- HPV testing means that if the woman tested does not have high-risk HPV, her chances of developing a cancer within five years are very small.

  (UK NSC HPV recommendation, 2016a

	68.7% (2020-21)
	70.9% (2021)
	73.2% (2019)
	76.43% (2018)
Data from NHS Digital 2021 Public Health Wales (2019) Cervical Screening Wales; Annual Statistical Report 2018-19) Northern Ireland (year ending March 2018) had a coverage rate of 76.43% Scotland statistics can be found at:	

Chaperones, privacy, dignity and the environment

The usual professional care and compassion is required by those undertaking the screening, and nurses and midwives need to be mindful of the Nursing and Midwifery Council (NMC) code, with particular reference to accountability and providing informed decision making and consent to procedures for women undergoing screening (NMC, 2018).

All women attending for screening should be offered the option of having a chaperone present during any consultation, examination, treatment or care (which may or may not include physical examination) and their decision should be documented.

For further information on chaperoning read:

- The General Medical Council's (GMC) *Intimate Examinations and Chaperones* (GMC, 2013). Available at:

- The RCN's *Genital Examination in Women: a resource for skills development and assessment*, (RCN, 2023a). Available at:

Vulnerable women – further resources

Royal College of Nursing

Professional resources with links to websites and organisations providing relevant information and support to victims of:

Handy pocket guide: *Domestic abuse: RCN guide for nurses and midwives to support those affected by domestic abuse* is available at:

Female genital mutilation: An RCN resource for nursing and midwifery practice (RCN, 2023b) is available at:

Modern slavery: RCN guide for nurses and midwives (RCN, 2017), available at:

Women's Aid and Refuge

Women's Aid Federation of England

Safer Wales Ltd

Safeguarding in Northern Ireland

Adult support and protection -

Department of Health

Responding to domestic abuse. A resource for health professionals (DH, 2017), available at:

Jo's Cervical Cancer Trust

Speculum examination in pregnant women

Routine cervical cytology is not recommended in pregnant women, as interpretation of the sample can be difficult, but should be deferred until 12 weeks post-partum. Public Health England (2016). Pregnant women should be reassured that clinically indicated speculum examinations, and tests for sexually transmitted infections, can be safely carried out during pregnancy. It is also advisable to delay cervical screening if the person:

- is menstruating.
- is less than 12 weeks post-partum.
- is less than 12 weeks after a termination of pregnancy, or miscarriage.

(NICE, 2022).

Where clinically indicated, the examination of a pregnant woman with a speculum is

To avoid the examination being disrupted or causing additional delays, it is important to have any potential additional equipment readily available. This includes samplers to undertake testing for infection (for example, microbiological and chlamydia swabs), alternative samplers to ensure the whole cervix is sampled, and any other additional equipment that may be required (for example, latex-free products).

Examination

Request that the woman remove her underclothes. A paper sheet to preserve modesty should be provided to cover the full lower torso. Ensure the woman is ready to undergo the assessment (see Figure 1).

During examination of the external genitalia, abnormalities such as , vulval lesions or signs of female genital mutilation should be noted. Additionally, during the internal examination, note any signs of abnormal vaginal discharge or infection. These symptoms will need to be discussed with the woman, recorded in her notes and appropriate action taken or a referral made.

- Offer the woman the opportunity to empty her bladder before commencing the examination; and privacy to change.
- If necessary, offer assistance onto the couch.
- Confirm the woman may request to stop the examination at any point.
- Advise the examination may be uncomfortable but should not be painful.
- Explain each phase of the test before proceeding.
- Offer to demonstrate the speculum and explain which part of the speculum will be inserted into the vagina if appropriate.
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- Open the speculum to expose the full cervix.
- Avoid scraping the cervix with the speculum as this may cause contact bleeding.
- The speculum need only be opened wide enough to reveal the cervix.
- It is not necessary to overexpose the cervix and vagina as this may cause discomfort.
- Once the entire cervix is visualised, secure the speculum in place.
- Inspect the cervix; note the appearance and colour of the cervix, amount and colour of vaginal secretions and the location of the transformation zone.
- Obtain the sample using the appropriate sampling tool (follow the manufacturer's instruction on correct use), ensuring all the transformation zone is sampled.
- Ensure sample is placed in the LBC vial as per protocol.
- Remove the speculum from vagina, explaining that it may be necessary to open the speculum slightly to release the cervix before removing the speculum.
- To ensure modesty, make sure the woman is covered, remove the trolley and advise the woman to dress.
- Ensure safe disposal of all equipment and adhere to local health and safety guidelines.

The cervix visual assessment guide

A visual educational tool developed by health professionals specialising in colposcopy and gynaecology by Roberts, A, a Specialist Nurse Colposcopist at South Tees Hospitals NHS Foundation Trust can be found at:

Difficult examinations

If it is not possible to visualise the cervix:

- ask the woman if she has been advised on the position of her cervix at previous examinations
- consider repositioning the woman (lateral position), raising the buttocks off the couch using a pillow, turning the speculum so the locking ratchet faces up or down or using a sheath to support the vaginal walls.
- request assistance from another trained sample taker.

Bi-manual examination is not necessary when undertaking cervical screening and is not a prerequisite for the sample taker. Digital examination may only be necessary to assist in the location of the cervix and not as a means of physical assessment that will aid diagnosis.

If it is still not possible to visualise the cervix then the procedure should be abandoned, and referral made to a colposcopy clinic.

Following the examination

Ensure that the woman knows how and when she will receive her results. Explain again what will happen if a result is abnormal and how her care will progress from here. Mention the possibility of vaginal bleeding and short-term discomfort, both of which should be minimal and temporary (and who to contact if concerned). Record keeping must be accurate and complete; the sample request form is an essential part of the process to prevent an inadequate report due to clerical omission.

The health care practitioner is responsible for:

- the understanding and interpretation of results
- the communication of results to the woman
- making appropriate follow-up arrangements
- monitoring onward referral to secondary services
- implementing the failsafe recommendations for non-responders, including understanding the national guidance on failsafe actions (NHS Cancer Screening Programmes, 2004; Public Health England, 2016).

Jo's Cervical Cancer Trust has further information on understanding screening results and abnormal cells:

Monitoring personal practice and audit

Health care practitioners should always reflect on their practice and use every opportunity to learn and develop; regular and complete auditing of practice is considered obligatory. Individual national cervical screening programmes will have their own requirements regarding audit, and sample takers should consult their own regional co-ordinators.

This may include:

- the number and rate of unsatisfactory samples
- percentage of abnormal results
- monitoring population coverage and uptake
- rejected samples or samples taken out of the programme and incidents.

Systems should be in place at a local level to provide continuous audit and regular update training. A named person, within each practice/clinic where cervical samples are taken, should be responsible for an overview of the screening programme. This should include the regular availability of results' tables to each cervical screening taker within the practice.

Where results are consistently different from the local laboratory or national average, discussion with the laboratory or national co-ordinator should be mandatory, and retraining made available. Laboratories should report regularly, and in detail, on the quality of all sample takers' work. New sample takers should have feedback from the laboratory or regional co-ordinator on the quality of their first 15 cervical screenings (or the nationally agreed number). Experienced sample takers should also ensure objective peer review and critical appraisal of their service regularly, and at least once every three years.

Further testing may include:

- a pelvic examination carried out under general anaesthetic
- blood tests to assess the state of the liver, kidneys and bone marrow
- computerised tomography (CT) scan
- magnetic resonance imaging (MRI) scan
- chest X-ray
- positive emission tomography (PET) scan.

Colposcopy

Staging

Staging is a measurement of how far the cancer has spread. The higher the stage, the further the cancer has spread. The staging for cervical cancer is as follows.

(pre-cancer) – there are no cancerous cells in the cervix, but there are biological changes that could trigger cancer in the future; this is called cervical intraepithelial neoplasia (CIN) or carcinoma in situ (CIS).

– the cancer is still contained inside the cervix.

– the cancer has spread outside of the cervix into the surrounding tissue but hasn't reached the tissues lining the pelvis (pelvic wall) or the lower part of the vagina.

– the cancer has spread into the lower section of the vagina and/or into the pelvic wall.

– the cancer has spread into the bowel, bladder or other organs, such as the lungs (NHS Choices, 2017).

Figure 2: Performing a colposcopy

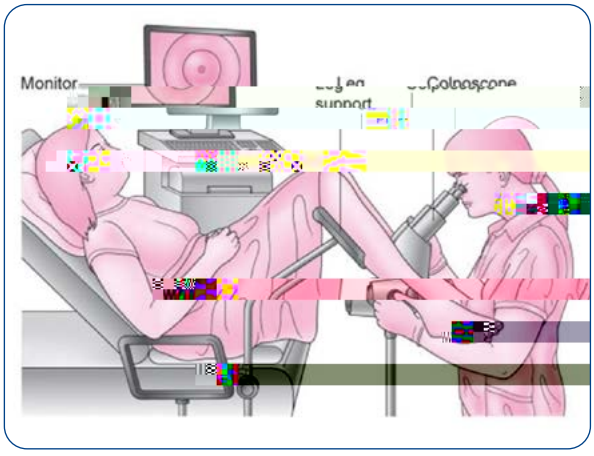

Diagram courtesy of
Jo's Cervical Cancer Trust (2018)

A colposcopy is a detailed examination of the cervix with a microscope, following the application of acetic acid and/or lugol's iodine solution. The microscope may be linked to a camera allowing the woman to view what the colposcopist (a registered doctor or nurse trained to perform colposcopy) sees. It also means the images can be filed in the woman's health care records for future reference (see Figure 2).

Prior to the examination it is important that the colposcopist takes time to explain the procedure to the woman and ensures she understands what is going to take place. Even if she is returning for treatment, a full explanation needs to be provided each time.

Following the consultation, the woman should be shown to a private area to prepare for the examination and offered the opportunity to use a bathroom. Questions may be asked at this point, needing varying levels of detail and explanation throughout the examination. When ready, the woman will be shown to the examination room and offered assistance to help attain the correct positioning on the couch, maintaining privacy and dignity at all times.

In some cases, a minor operation called a large loop excision of the transformation zone (or LLETZ) may be carried out. This usually happens in the colposcopy clinic under a local anaesthetic, but sometimes requires a general anaesthetic. A small section of the cervix is removed with a wire loop. This can then be examined under a microscope for pre-cancerous or cancerous cells.

It is important to reassure the woman, where appropriate, and remind her that she may have vaginal bleeding and/or period-like pains for up to four weeks after the procedure.

Histological confirmation less than CIN 1 can adjust the woman's recall to every three years. However, some women may not be comfortable with this. They may have had abnormalities in the past and a recall every six months has been the norm. The NHS Cervical Screening Programme (NHSCSP) has proposed a new pathway based on current best evidence and this should be explained to the woman. They can also be directed to local or national literature/websites for further information.

Treatment options

Treatment for for abnormal cells (cell changes) and cervical cancer will depend on the extent of the disease spread and the prognosis is better the earlier it is diagnosed. However, cervical cancer can be fatal as identified by Cancer Research UK, with 890 deaths recorded in 2014 (Cancer Research UK, 2014b).

The prospect of a successful treatment is higher for cervical cancer diagnosed at an early stage, although the success rates do decrease the further the cancer has spread. The preferred treatment option for removing abnormal cervical cells continues to be the large loop excision of the transformation zone (LLETZ) to remove the area affected. See Figure 3. Laser or cryotherapy may also be used and, dependent on the management required, treatment may include radiotherapy and/or chemotherapy.

Other treatment methods may include cone biopsy and, in rare cases, hysterectomy (or removal of the cervix if fertility is a consideration).

Cell removal is preferred over cell destruction as this facilitates histological examination of the area. Destructive techniques are still used widely including: ,

6. Conclusion

All people with a cervix, whether vaccinated or not, should undergo cervical screening.

7. Glossary

, a type of yeast that is a common member of the human gut flora, often shortly referred to as thrush, candidiasis or candida.

, a sexually transmitted infection caused by the bacterium chlamydia trachomatis.

, a procedure to treat women with an abnormality on their cervix by destroying the abnormal cells through a heated probe.

, a treatment that uses extreme cold to destroy cancer cells.

, a man-made (synthetic) form of oestrogen. DES was given to pregnant women between 1945 and 1970 to try and stop them having a miscarriage. Evidence now suggest that daughters of women who took DES during their pregnancy (particularly during the first trimester) are more at risk of getting clear cell adenocarcinoma vaginal cancer.

, difficult or painful sexual intercourse.

, (also called herd effect, community immunity, population immunity or social immunity) is a form of indirect protection from infectious disease that occurs when a large percentage of a population has become immune to an infection, thereby providing a measure of protection for individuals who are not immune.

, a treatment that uses intense, narrow beams of light to cut and destroy tissue, such as cancer tissue.

, a long-term skin condition that mainly affects the skin of the genitals.

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Cervical Screening Northern Ireland

Cervical Screening Scotland

Cervical Screening Wales

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RCN quality assurance

This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.

This updated edition includes guidance for registered nurses working in a range of health care settings, in particular those invo8 (a)27.0 eoes wum15.6 83≥of heal(g)10.6 , c(u)2.2(t)26.7 (-2 nu)2 (i)6


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