**What is Cervical Cancer?**

Cancer of the cervix originates in the cells covering the surface of the cervix. The cervix is the lower narrow part of the womb which forms a canal that opens into the vagina. It plays an important role in maintaining a normal pregnancy.

The surface layer of the cervix is made up of squamous and columnar epithelial cells. The area where these two cells meet around the opening of the cervix that leads on to the endocervical canal is called the transformation zone or squamo-columnar junction. It is in this area of the cervix where cervical cells are most likely to become cancerous.

Approximately 75% of cervical cancers are *squamous* in origin, developing from the flat epithelial cells in the vicinity of the transformation zone. About 15% are *adenocarcinomas* that develop from the glandular epithelial cells which line the cervical canal (endocervix). Other less common variants of squamous and glandular carcinomas are recognised. Rare types of non-epithelial tumours account for less than 1% and include *lymphomas* and *sarcomas*.

Cancer of the cervix is preceded by the development of abnormal epithelial cells known as cervical intra-epithelial neoplasia (CIN) or dysplasia. CIN is classified into three grades (CIN 1, 2 and 3) depending upon the extent of epithelial involvement. CIN has the potential to develop into cancer if left untreated. Cervical screening (the smear test) is designed to detect early changes (dyskaryosis) in the cells of the transformation zone. (More details of this and other screening programmes are outlined on Factsheet No. 15 within this series).

**Risk Factors**

- **Human Papillomaviruses** - Cervical intra-epithelial neoplasia (CIN) is strongly associated with human papillomavirus (HPV) which is a common type of virus, and can infect the cells of the cervix. It is generally sexually transmitted. The type of HPV present can affect whether the CIN develops into a cancer. There are over 100 types of HPV and types 16, 18, 31 and 33 are usually associated with the development of cervical cancer.

- **Sexual Activity** - Research has shown that women who have sexual intercourse at an early age and multiple sexual partners, or whose partners have had many sexual partners, have an increased risk of developing cervical cancer. This is because they are more likely to have been exposed to a sexually transmitted virus. The use of barrier methods of contraception has been shown to reduce the risk of developing cervical carcinoma, and studies have shown that male circumcision may offer a protective effect.

- **Age** - Cervical cancer predominantly affects women over the age of 45, but can affect all age groups.

- **Other Factors** - Smoking has been shown to increase the risk of developing cervical cancer. Researchers have found cancer-causing chemicals (tobacco-specific carcinogens from cigarette smoke) in the cervical mucus of women who smoke. A weakened immune system due to HIV, AIDS, smoking, poor diet and other infections may predispose to the development of CIN.

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Source: CancerBACUP Website and Cancer Link Website


Cervical cancer is the 12th most common female cancer in the South West

There were 366 registrations of cervical cancer in 2000

Cervical cancer is the 15th most common cause of female cancer death in the South West

Source: South West Cancer Intelligence Service Registry

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Sources: CancerBACUP Website, Oncology Channel Website and Cancer Link Website

*International Classification of Diseases, 10th Revision

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For more information please visit www.theswcis.nhs.uk or telephone 0117 970 6474
### Symptoms
Pre-malignant disease of the cervix (CIN) is usually asymptomatic and screening is designed to detect early cell changes (dyskaryosis) in cervical smears. The most common symptom of invasive cervical cancer is abnormal vaginal bleeding between periods or after intercourse. Other symptoms are excessive vaginal discharge which may be mucoid or offensive, dyspareunia (difficult or painful intercourse) and pelvic discomfort. However, not all symptoms are necessarily indicative of cancer.

### Diagnosis
After a smear test that reveals abnormal (dyskaryotic) cells, colposcopy may be used to make a thorough examination of the surface cells on the cervix using a low-powered microscope (colposcope). Small tissue samples (punch biopsies) or large loop excision of the transformation zone (LLETZ) using an electric wire may be performed at colposcopy. This involves removal of the surface cells and underlying tissue for examination in the pathology laboratory. If the abnormal area cannot be seen clearly with the colposcope, a cone biopsy may be carried out to remove a narrow ‘cone’ of the cervical canal. This shows whether the abnormal cells have invaded the tissue beneath the surface of the cervix. This diagnostic procedure may be curative in removing a micro-invasive cancer (FIGO stage 1A1). A range of additional investigations (computerised tomography (CT), magnetic resonance imaging (MRI), chest x-rays, intravenous pyelogram (IVP) pelvic ultrasound and pelvic examination) may be performed to show the size, position and stage of the cancer.

### Stage
The stage of cervical cancer describes the extent of the disease, based on surgical findings. The treatment of cervical cancer is dependent on the International Federation of Gynaecology and Obstetrics (FIGO) staging.

#### Subclassification of stage IA and IB tumours (into stage IA1, IA2, IB1 and IB2) depends upon the precise microscopic dimensions of the tumour. Stage II cervical cancer shows invasion beyond the cervix, but not to the pelvic wall or the lower third of the vagina. Stage II tumours are subclassified into IIA and IIB depending upon whether or not there is parametrial involvement. Stage III tumours indicate involvement of other pelvic organs/structures, i.e., stage IIIA tumours involve the lower third of the vagina but not the pelvic sidewall; IIIB tumours extend to the pelvic wall and/or cause hydronephrosis or non-functioning kidney. Stage IV cervical cancer extends beyond the true pelvis or has invaded bladder or rectal mucosa or shows distant metastasis.

### Treatment
#### Cervical intra-epithelial neoplasia - Mild dysplasia (CIN 1) may return to normal and patients with this type of abnormality may be monitored with more frequent cervical smears to observe any further changes that may need treatment. Moderate dysplasia (CIN 2) or severe dysplasia (CIN 3), may be treated by destroying or removing the abnormal cells in the transformation zone to a depth of approximately 6mm. A range of treatment modalities may be used to treat high grade CIN including laser therapy (destroying abnormal cells), cryotherapy (freezing abnormal cells), cold coagulation (heating abnormal cells) or diathermy (passing an electric current through the area). For CIN 3 a large loop excision of the transformation zone or cone biopsy may be performed. In women who no longer wish to have children or are past childbearing age a simple hysterectomy (removal of the uterus) may be carried out.

#### Invasive cervical cancer - Treatment of cervical cancer is carried out according to the SWCIS Gynaecological Cancer Standards and Protocols. Patients with early stage cervical cancer are usually treated with surgery and/or radiotherapy. For younger patients with early stage cervical cancer, fertility-sparing procedures e.g., trachelectomy (removal of the cervix, upper vagina and pelvic lymph nodes) may be considered. In some instances of very early/micro-invasive carcinoma, the diagnosis LLETZ may be curative. For more advanced cervical cancers, a radical hysterectomy may be performed which includes the removal of the uterus, ovaries, cervix, upper third of the vagina, parametrial tissues and lymph nodes. External and/or internal radiotherapy may be used after surgery to prevent recurrence. In younger women removal of the ovaries or radiotherapy to the pelvic area results in an early menopause, so the type of treatment received may vary depending on individual circumstances. In some circumstances chemotherapy may also be considered. If the cancer has spread beyond the cervix and is not curable with surgery, palliative radiotherapy may be administered in combination with adjuvant chemotherapy to shrink tumours and control pain. Surgery may be performed to alleviate bowel obstruction and remove or drain a hydronephrotic kidney to relieve symptoms.
For England and Wales the 1997 national age standardised rate (ASR) for cervical cancer in females is 9.6 per 100,000 population. In the South West the comparative cervical cancer figures are 8.7 per 100,000 female population. This is just below the national average. Nationally the incidence rate is below 3 per 100,000 population in females under 25. The South West figures are therefore in line with national averages.

For England and Wales the 1990-2000 average national age standardised rate (ASR) for cervical cancer mortality in females is 4.3 per 100,000 population. In the South West comparative cervical cancer mortality figures are 3.9 per 100,000 female population. For females diagnosed with cervical cancer in the South West between 1992 and 1994, the average 1 year survival rate is 78%, and 57% for 5 year survival. Survival rates across the South West are slightly below England and Wales national figures.

Source: South West Cancer Intelligence Service Registry Data, England & Wales Life Tables from Government Actuary’s Department.