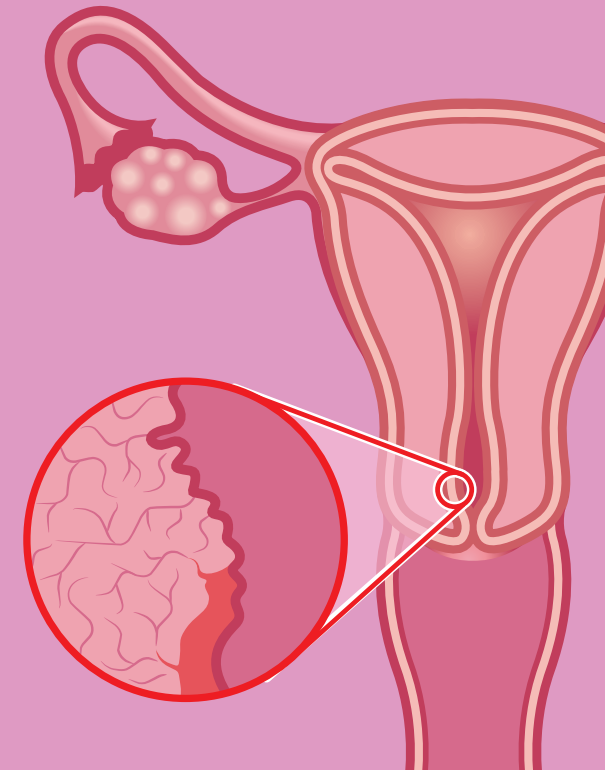


Cervical cancer

*A guide for journalists on
cervical cancer and its treatment*



Contents

Contents	2
Overview	3
Section 1: <i>Cervical Cancer</i>	4
i. What is cervical cancer?	4
ii. Causes and risk factors	4
iii. Prevention	5
iv. Symptoms	5
v. Diagnosis	6
vi. Staging	6
Section 2: <i>Epidemiology</i>	7
i. Incidence and mortality	7
ii. Prognosis	8
Section 3: <i>Treatment</i>	9
i. Surgery	9
ii. Radiotherapy	9
iii. Chemotherapy	9
iv. Biological therapies	9
References	10

Overview

Cervical cancer is the fourth most common cancer in women, with over half a million estimated cases worldwide each year.¹ Despite widespread screening and vaccination programs, it remains one of the leading causes of cancer death in women globally, with over 260,000 women dying annually.¹

Cervical cancer is caused when cells of the cervix, the lower part of the uterus, go through abnormal changes to create precancerous cells that gradually turn into cancer. The vast majority of cases (99%) are caused by the Human Papillomavirus (HPV),² which is easily spread through sexual contact. Whilst the majority of women infected with HPV do not go on to develop cervical cancer,³ unfortunately some do, and it is vital that women have access to screening and vaccination programmes to help prevent the development of advanced clinical disease.

If cervical cancer is caught early the outlook is good, with an estimated five-year survival rate of up to 91%.⁴ For women with advanced disease, however, the outlook is not favourable, with a five-year survival rate of less than 20%.⁴ Treatment options include surgery, radiotherapy, chemotherapy, and more recently a biological therapy, or a combination of these. Whilst early-stage cancer may be cured by surgery or radiotherapy, most advanced cases of cervical cancer are incurable.

This guide provides an overview of cervical cancer, including its incidence, risk factors, symptoms, diagnosis and treatment options.

Section 1

Cervical cancer

i. What is cervical cancer?

Cervical cancer is caused when cells of the cervix, the lower part of the uterus, go through abnormal changes and create precancerous cells that gradually turn into cancerous cells.

There are two main types of cervical cancer (see Figure 2).^{5,6}

- **Squamous cell cancer:** This is the most common type of cervical cancer, accounting for 70 to 80% of cases.⁶ It develops from the flat cells that cover the outer surface of the cervix (the ectocervix).

- **Adenocarcinoma:** This develops from glandular cells that produce mucus to line the cervical canal (the endocervix). Although adenocarcinoma is less common than squamous cell cancer, it has become more common in recent years⁷ and now accounts for ten to 15% of cases of cervical cancer.⁶ As adenocarcinoma originates in the cervical canal rather than the cervix itself, it can be more difficult to detect via screening than squamous cell cervical cancer, but treatment is the same.

There are also some other less common types of cervical cancer including adenosquamous carcinomas, clear-cell carcinomas and small-cell carcinomas.⁵

ii. Causes and risk factors

Human Papillomavirus (HPV): Almost all cases of cervical cancer (99%) are caused by a group of viruses called human papillomavirus.² There are more than 100 types of HPV, including HPV 16 and HPV 18 which are responsible for causing about 70% of cases of cervical cancer.⁹ HPV is easily spread during sexual contact, and around half of all sexually active people are infected with one or more HPV types at some point in their lives.⁸ In most women infected with HPV the disease will spontaneously resolve,⁹ but in some women the infection develops into cervical cancer, usually more than a decade after initial infection.³

A weakened immune system: Women with HPV who also have a weakened immune system (via smoking, poor diet, taking immunosuppressive drugs or infections such as HIV/AIDS) have a higher

risk of developing cervical cancer.^{9,10}

Other sexually transmitted infections (STIs): Women with STIs such as chlamydia, gonorrhoea, syphilis or HIV/AIDS have a higher risk of developing cervical cancer.⁹

Smoking: Women who smoke are more likely to develop squamous cell cervical cancer than women who do not smoke.¹⁰

The contraceptive pill: Long term (over ten years) use of the contraceptive pill has been shown to slightly increase the risk of developing cervical cancer. However, the risk drops as soon as women come off the pill and after ten years the risk is the same as if it had never been taken.^{10,11}

How many children, and when: Women with large families have a greater risk of developing cervical cancer, and young mothers (17 or younger) have a doubling of risk compared to women who have their first baby at 25 years or older.¹¹

Figure 1 Cervical cancer occurs in the cervix, the lower part of the uterus

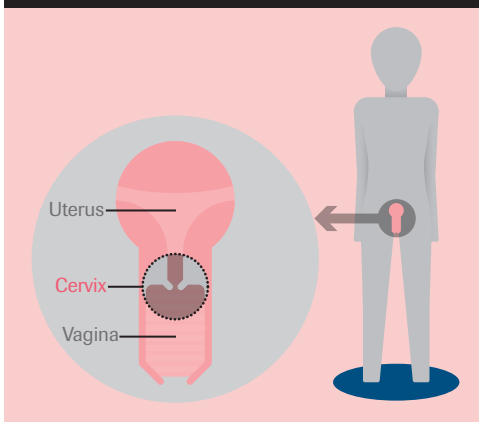
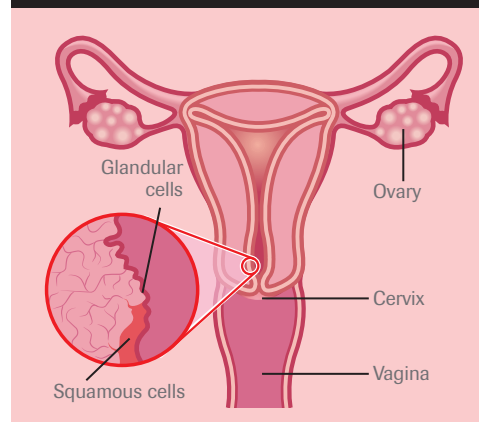


Figure 2 Two types of cells involved in cervical cancer



iii. Prevention

Cervical cancer is preventable. There are many successful screening and vaccination programs in place throughout the world to detect precancerous lesions and prevent women from developing advanced disease. It is critical that women have access to these programs to help prevent unnecessary deaths.

- **Cervical screening:** Screening enables early identification and removal of pre-cancerous lesions, dramatically

reducing the incidence and mortality of cervical cancer worldwide. Regular cervical screening is an essential tool to monitor the cervix and easily identify abnormal cells at an early stage. Most health authorities in the developed world monitor women at regular intervals throughout their life, enabling early abnormal changes in cervical cells to be treated before they progress to cancerous cells. The cervical screening test (smear pap test) involves taking a sample of cells from the cervix and

analysing them using cytology (see Figure 3). Cervical cancer can sometimes be prevented entirely if detected early by having regular screening.¹²

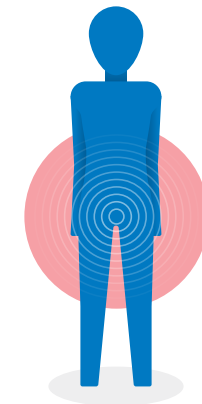
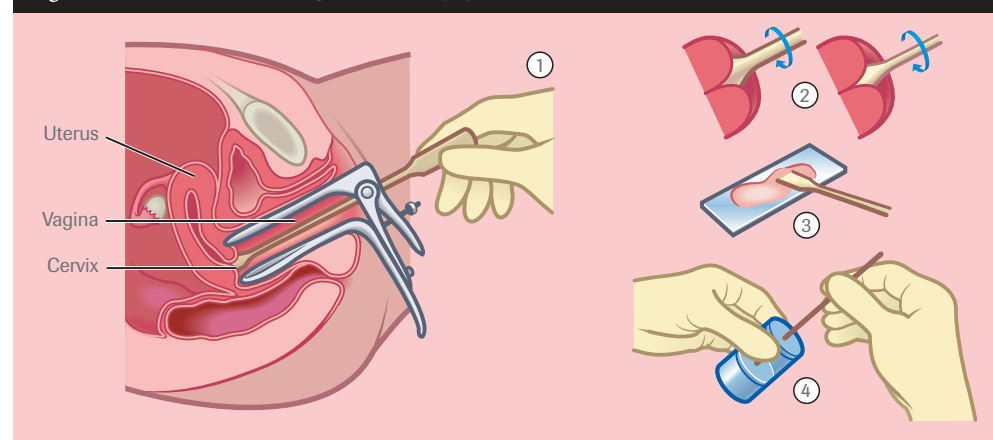
- **HPV screening:** HPV testing identifies women at higher risk of cervical cancer who need immediate management.
- **Vaccination:** Vaccines against HPV are available and offer protection if administered before exposure to the virus has occurred.¹³ This has resulted in many health authorities recommending the vaccination of pre-pubescent children (boys and girls), before they become sexually active.

iv. Symptoms

Cervical cancer often has no symptoms in its early stages.¹⁴ As the cancer progresses the following signs and symptoms of more advanced cervical cancer may appear:^{15,16}

- Abnormal bleeding or substantial change to menstrual cycle. This is the most common symptom of cervical cancer
- Unusual vaginal discharge
- Pelvic pain
- Bleeding after intercourse

Figure 3 The cervical screening test (smear pap test)

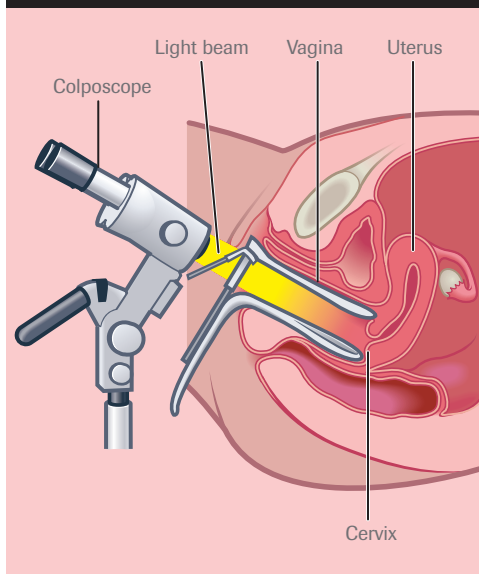


v. Diagnosis

If a woman is experiencing symptoms of cervical cancer, or if her latest smear pap test reveals any abnormalities, further tests may be undertaken to confirm a diagnosis, including:

- **Colposcopy:** During a colposcopy the cervix is examined using a special magnifying instrument (colposcope) and

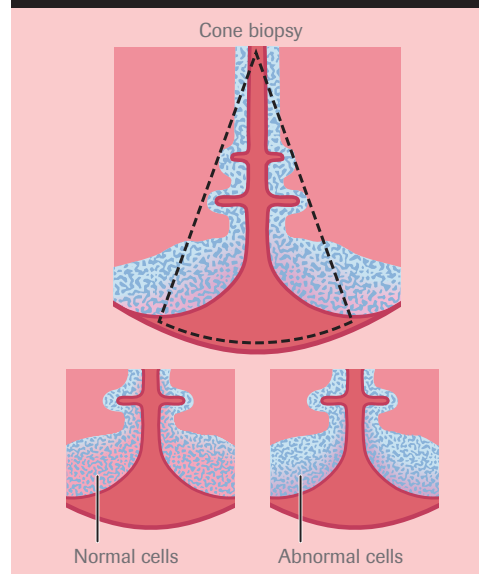
Figure 4 Colposcopy



a small sample (biopsy) is taken of any abnormal looking cells for analysis (see Figure 4).¹⁷

- **Cone biopsy (conisation):** During a cone biopsy a scalpel, laser or electrified wire loop is used to remove a cone-shaped area of cervical cells to obtain a deeper layer of cervical cells for analysis (see Figure 5).¹⁸

Figure 5 Cone biopsy (conisation)



vi. Staging

Staging determines how advanced the cancer is and whether it has spread to other parts of the body. It helps to identify the most appropriate treatment options for the patient. If, at the initial diagnostic biopsy, the cancer appears to be more advanced and likely to have spread, then the below tests may be needed:¹⁹

- **Imaging:** X-rays, computerised tomography (CT) scans, magnetic resonance imaging (MRI) or positron

emission tomography (PET) are used to help visualise whether the cancer has spread beyond the cervix.¹⁹

- **Visual examination:** using a cystoscope or protoscope to assess any spread to the bladder or rectum, respectively.¹⁸

Information from both the diagnostic and staging tests is combined to assign the stage of disease,²⁰ defined by the FIGO (International Federation of Gynecology and Obstetrics) system:

Table 1 The stages of cervical cancer (FIGO)

	Stage	Classification
Early stage disease	Stage I	Tumour confined to surface of the cervix
	Stage II	Tumour grown beyond cervix and uterus, but not yet spread to walls of pelvis or lower part of vagina
Later stage	Stage III	Tumour grown beyond cervix to the pelvic side wall or the lower third of the vagina
	Stage IV	Most advanced stage where cancer has spread to nearby organs e.g. bladder or rectum, or more distant organs e.g. lungs, liver or bones

Section 2 Epidemiology

i. Incidence and mortality

It is estimated that there are more than half a million new cervical cancer cases diagnosed worldwide each year, with 85% of the global burden found in developing countries where reliable screening procedures are not likely to be in place.¹

The highest incidence of cervical cancer is in Eastern, Western and Southern Africa; and the lowest incidence in Northern America, Australia and New Zealand, and Western Asia.¹

Cervical cancer is most commonly diagnosed in women aged between

35 and 44 years, a decade or so after initial infection with the HPV virus.³

Cervical cancer is the fourth most common female cancer¹ and one of the leading causes of cancer death in women worldwide, with over 260,000 women dying each year.¹

Figure 6 Estimated cervical cancer incidence worldwide in 2012

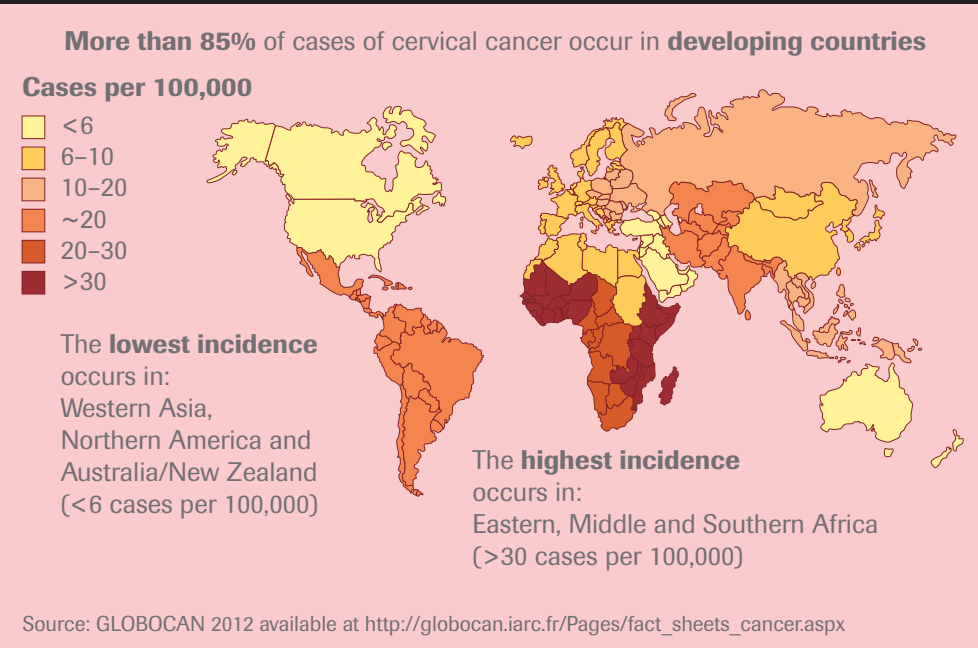
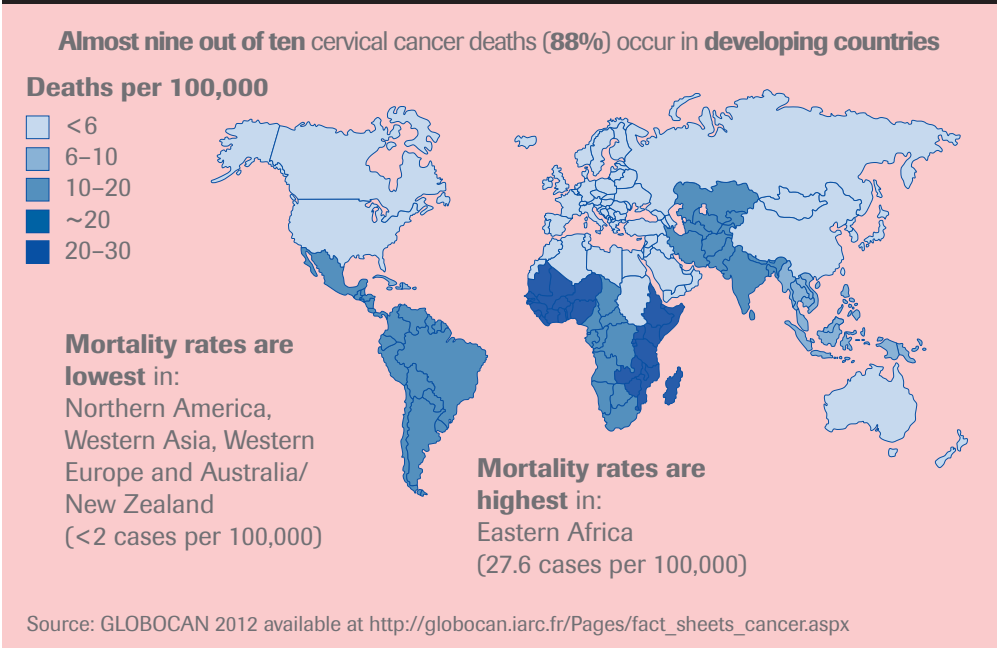


Figure 7 Estimated cervical cancer mortality worldwide in 2012



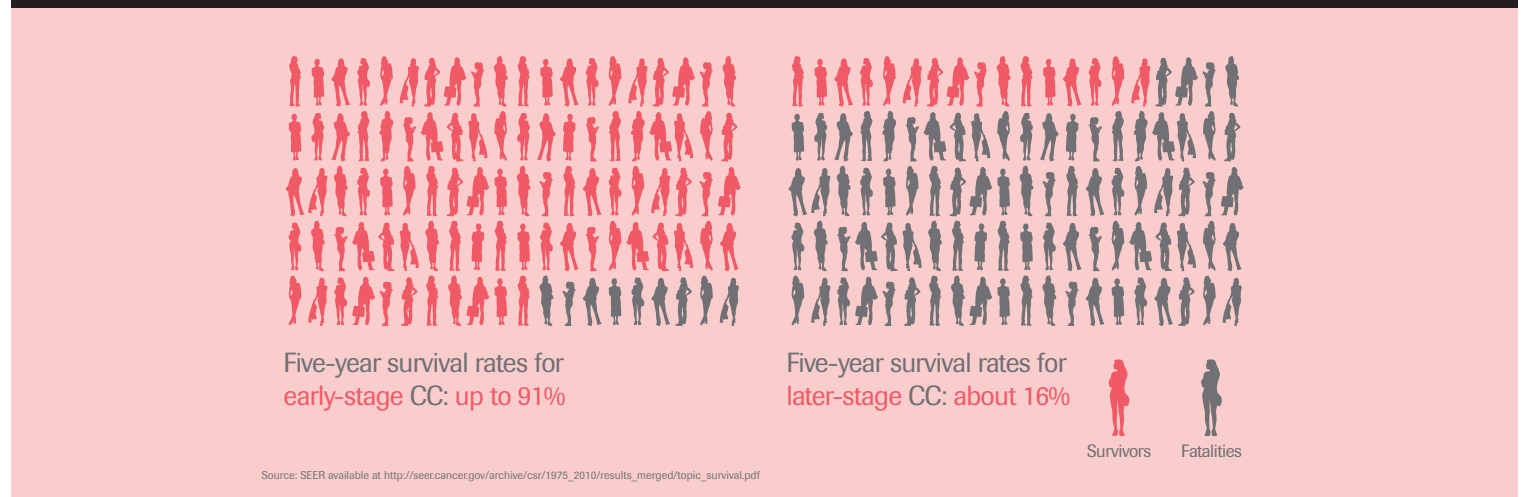
ii. Prognosis

If cervical cancer is diagnosed at an early-stage, when the cancer is confined to the cervix and has not spread, there is a good chance of a cure. For women who are diagnosed when the cancer has already spread, a cure is less likely but still possible. Even if a cure is not possible, treatment can often slow down progression of the cancer.¹⁹

The dramatic difference in five year survival rates between early and advanced cervical cancer highlight how crucial it is to obtain early diagnosis:⁴

- If cervical cancer is caught early, the outlook is good, with an estimated five-year survival rate of up to 91%
- If cervical cancer is caught late and the disease has advanced, five-year survival rates are less than 20%

Figure 8 Cervical cancer estimated five-year survival rate depending on stage of diagnosis



Section 3

Treatment

Current treatment options include surgery, radiotherapy, chemotherapy, and more recently a biological therapy, or a combination of these.¹⁹ The treatment advised for each case depends on various factors such as the stage of the cancer and the individual's general health.

In women with early-stage disease, treatment aims to cure the cancer. If a cure is not realistic, however, then treatment often aims to control the cancer; limiting its growth and spread so that the woman can remain symptom free for as long as possible. Whilst early-stage cancer may be cured by surgery or radiotherapy, most advanced cases of cervical cancer are incurable.

i. Surgery

Early-stage cervical cancer is often treated via surgery, either to remove part of the cervix (radical trachelectomy), or more commonly, some or the entire womb

(hysterectomy). This can be curative if the cancer has not spread from the cervix. If the cancer has spread, then more extensive surgery may be performed to remove nearby affected structures such as the bladder or bowel. This may be followed with radiotherapy. Surgery may also be performed in advanced cases where a cure is not possible to help relieve symptoms, for example, to relieve a blockage of the bowel or urinary tract caused by the cancer.

ii. Radiotherapy

Radiotherapy can be curative for early-stage cervical cancer and may be used as an alternative to surgery. It may also be used in conjunction with other treatments for more advanced cancers, or to ease symptoms (by shrinking painful tumours). Radiotherapy can be either internal or external, though in cervical cancer both types are often used:

- **External radiotherapy:** Radiation

targets the cancer externally using a radiotherapy machine.

- **Internal radiotherapy**

(brachytherapy): A small radioactive implant is placed next to the cancerous tumour (in the vagina) for a short time.

iii. Chemotherapy

If cervical cancer is caught late and the disease has advanced, then the aim of treatment at this stage is to relieve symptoms and prolong life without worsening quality of life. Later-stage cervical cancer is often treated with both radiotherapy and chemotherapy, and more recently a biological therapy.

iv. Biological therapies

The treatment of cancer is a highly evolving area of medicine. Biological (targeted) therapies are an innovative approach to cancer treatment and target specific

biological processes often essential to tumour growth. Biological therapy can include use of monoclonal antibodies, vaccines and gene therapies. As biological therapies precisely target cancer-specific processes, they may be more effective than other types of treatment (such as chemotherapy and radiotherapy) and less toxic to noncancerous, healthy cells.²¹

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