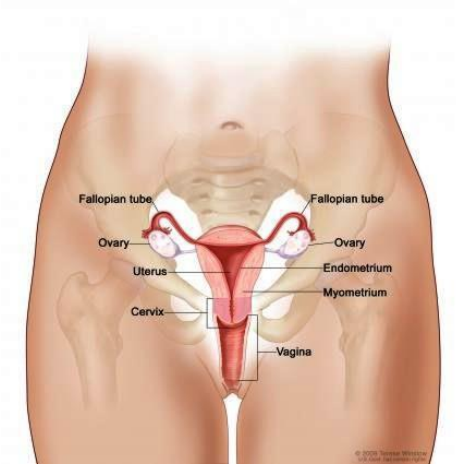
# Cancer Association of South Africa (CANSA)

CANSA Fact Sheet
On
Ovarian Cancer

**Introduction**

The ovaries form part of the female reproductive organs that house the ova and are also responsible for the production of sex hormones. The ovaries are paired organs located on either side of the uterus within the broad ligament below the uterine (fallopian) tubes. Each ovary is within the ovarian fossa, a space that is bound by the external iliac vessels, obliterated umbilical artery, and the ureter. The ovaries are responsible for housing and releasing ova, or eggs, necessary for reproduction. At birth, a female has approximately 1-2 million ova, but only about 300 of these eggs will ever become mature and be released for the purpose of fertilisation.

[Picture Credit – Ovarian Anatomy]




**Ovarian Cancer**

Ovarian cancer is cancer of the cells of one or both ovaries.

**Cabasag, C.J., Fagan, P.J., Ferlay, J., Vignat, J., Laversanne, M., Liu, L., van der Aa, M.A., Bray, F. & Soerjomataram, I.** 2022.

"Ovarian cancer remains to have relatively poor prognosis particularly in low-resourced settings. It is therefore important to continually examine the burden of ovarian cancer to identify areas of disparities. Our study aims to provide an overview of the global burden of ovarian cancer using the GLOBOCAN 2020 estimates by country, world region, and Human Development Index (HDI) levels, as well as the predicted future burden by the year 2040 by HDI. Age-standardized incidence and mortality rates for ovarian cancer in 185 countries were calculated by country, world region, and for the four-tier HDI. The number of new cases and deaths were projected for the year 2040 based on demographic projections by HDI category. Approximately 314 000 new ovarian cancer cases and 207 000 deaths occurred in 2020. There were marked geographic variations in incidence rates, with the highest rates observed in European countries with very high HDI and low rates were found in African countries within the lowest HDI group. Comparable mortality rates were observed across the four-tier HDI. Relative to 2020 estimates, our projection for 2040 indicates approximately 96% and 100% increase

in new ovarian cancer cases and deaths, respectively, among low HDI countries compared to 19% and 28% in very high HDI countries. Our study highlights the disproportionate current and future burden of ovarian cancer in countries with lower HDI levels, calling for global action to reduce the burden and inequality of ovarian cancer in access to quality cancer care and treatment."

**Tumour Grade and Tumour Stage**

Tumour grade and stage are terms used to describe the severity of a tumour, while tumour grade describes the appearance of cancerous cells in the tissue by examining them under a microscope.

Tumour stage encompasses:

- The location of the tumour.
- The size and/or extent of the original tumour.
- Whether cancer cells have spread to lymph nodes or anywhere else in the body.
- The number of tumours present.

Doctors use tumour grade, cancer stage, and a patient's age and general health to decide the course of treatment for the patient and determine prognosis. Prognosis describes all factors including the disease course, cure rate, chances of survival, and risk of recurrence of cancer.

What are the cancer stages?

Different systems of cancer staging are used to describe the types of cancer. Below is a common method in which stages are ranged from 0 to IV.

- Stage 0: The tumour is confined to its place of origin (in situ) and has not spread to nearby tissue.
- Stage I: The tumour is located only in the original organ, is small, and has not spread.
- Stage II: The size of the tumour is large but has not spread.
- Stage III: The tumour has become larger and may have spread to surrounding tissues and/or lymph nodes.
- Stage IV: The tumour has spread to other distant organs of the body, which is known as the metastasis stage.

TNM staging

Another common staging method used for cancer is the TNM system, which stands for tumour, node (which means spread of the tumour to lymph nodes), and metastasis. When a patient's cancer is staged using the TNM system, a number will be present along with the letter. This number signifies the extent of the disease in each category - tumour, node, and metastases.

Another system of cancer staging divides cancer into five stages, which include:

- In situ: Abnormal cells are present but have not spread to nearby tissue.
- Localized: Cancer is located only in the original organ and shows no sign of its spread.
- Regional: Cancer has spread to nearby lymph nodes, tissues, or organs.
- Distant: Cancer has spread to distant parts of the body.
- Unknown: The stage cannot be figured out due to a lack of enough information.

What are the cancer grades?

Cancer grades are based on examination of the suspected tissue sample under a microscope. This involves surgically removing a piece of the suspected cancerous tissue and sending it to the lab for analysis. The entire procedure is known as a biopsy.

A doctor who specializes in diagnostic tests (pathologist) examines the cells of the tissue and determines whether they are harmless (benign or noncancerous) or harmful (malignant or cancerous). They describe the microscopic appearance of the cells and assign a numerical "grade" to most cancers. Generally, a lower grade indicates slow-growing cancer and a higher grade indicates fast-growing cancer.

The most commonly used grading system is as follows:

- Grade I: Cancer cells that look like normal cells but are not growing rapidly.
- Grade II: Cancer cells that don't look like normal cells with their growth being faster than normal cells.
- Grade III: Cancer cells that look abnormal and have the potential to grow rapidly or spread more aggressively.

Sometimes, the following system can be used:

- GX: Grade cannot be assessed (undetermined grade)
- G1: Well-differentiated (low grade)
- G2: Moderately differentiated (intermediate grade)
- G3: Poorly differentiated (high grade)
- G4: Undifferentiated (high grade)

**Staging of Ovarian Cancer**

Ovarian Cancer has a unique and specific staging system.

When a person has Stage 1 Ovarian Cancer, it means the cancer has been found in one or both ovaries. About 15% of women with Ovarian Cancer are diagnosed with Stage 1.

Stage 1A: Cancer is found inside a single ovary

Stage 1B: Cancer is found inside both ovaries

Stage 1C: Cancer is found inside one or both ovaries and one of the following is true:

- Cancer is also found on the outside surface of one or both ovaries; or
- The capsule (outer covering) of the ovary has ruptured (broken open); or
- Cancer cells are found in the fluid of the peritoneal cavity (the cavity that contains most of the organs in the abdomen) of in washings of the peritoneum (tissue lining the peritoneal cavity)

Stage 2A: Cancer has spread to the uterus and/or fallopian tubes (the long slender tubes through which eggs pass from the ovaries to the uterus)

Stage 2B: Cancer has spread to other tissue within the pelvis

Stage 2C: Cancer is found inside one or both ovaries and has spread to the uterus and/or fallopian tubes, or to the other tissue within the pelvis. Also, one of the following is true:

- Cancer is found on the outside surface of one or both ovaries; or
- The capsule (outer covering) of the ovary has ruptured (broken open); or
- Cancer cells are found in the fluid of the peritoneal cavity (the body cavity that contains most of the organs in the abdomen) or in washings of the peritoneum (tissue lining the peritoneal cavity)

Stage 3A: The tumour is found in the pelvis only, but cancer cells that can b e seen only with a microscope have spread to the surface of the peritoneum (tissue that lines the abdominal wall and covers most of the organs in the abdomen), the small intestines, or the issue that connects the small intestines to the wall of the abdomen

Stage 3B: Cancer has spread to the peritoneum and the cancer in the peritoneum is 2 centimetres or smaller

Stage 3C: Cancer has spread to the peritoneum and the cancer in the peritoneum is larger than 2 centimetres and/or cancer has spread to lymph nodes in the abdomen

Stage 4: When a person is diagnosed with Stage4 ovarian cancer, the cancer has spread beyond the abdomen to other parts of the body, such as the lungs or tissue inside the liver. Cancer cells in the fluid around the lungs is also considered Stage 4 ovarian cancer.

**The International Classification of Disease 10th Version (ICD-10)**

The International Classification of Diseases (ICD) is designed to promote international comparability in the collection, processing, classification, and presentation of mortality statistics. This includes providing a format for reporting causes of death on the death certificate.

ICD serves a broad range of uses globally and provides critical knowledge on the extent, causes and consequences of human disease and death worldwide via data that is reported and coded with the ICD. Clinical terms coded with ICD are the main basis for health recording and statistics on disease in primary, secondary and tertiary care, as well as on cause of death certificates. These data and statistics support payment systems, service planning, administration of quality and safety, and health services research. Diagnostic guidance linked to categories of ICD also standardizes data collection and enables large scale research.

For more than a century, the International Classification of Diseases (ICD) has been the basis for comparable statistics on causes of mortality and morbidity between places and over time. Originating in the 19th century, the latest version of the ICD, ICD-11, was adopted by the 72nd World Health Assembly in 2019 and came into effect on 1st January 2022.

The ICD-10 Code malignant neoplasm of unspecified ovary – C56.9.

**Incidence of Ovarian Cancer in South Africa**

According to the outdated National Cancer Registry (2019) the following number of ovarian cancer cases was histologically diagnosed in South Africa during 2019:

| Group - Females 2019 | No of Cases | Lifetime Risk | Percentage of All Cancer |
|---|---|---|---|
| All females | 567 | 1:434 | 1,29% |
| Asian females | 18 | 1:509 | 1,36% |
| Black females | 202 | 1:945 | 1,00% |
| Coloured females | 59 | 1:383 | 1,15% |
| White females | 288 | 1:127 | 1,63% |

The frequency of histologically diagnosed cases of ovarian cancer in South Africa for 2019 was as follows (National Cancer Registry, 2019):

| Group - Females 2019 | 0 – 19 Years | 20 – 29 Years | 30 – 39 Years | 40 – 49 Years | 50 – 59 Years | 60 – 69 Years | 70 – 79 Years | 80+ Years |
|---|---|---|---|---|---|---|---|---|
| All females | 22 | 19 | 34 | 71 | 134 | 178 | 86 | 33 |
| Asian females | 0 | 1 | 0 | 3 | 3 | 3 | 5 | 3 |
| Black females | 17 | 9 | 24 | 29 | 46 | 54 | 18 | 5 |
| Coloured females | 3 | 2 | 2 | 7 | 11 | 22 | 10 | 2 |
| White females | 2 | 7 | 8 | 32 | 64 | 99 | 53 | 23 |

N.B. In the event that the totals in any of the above tables do not tally, this may be the result of uncertainties as to the age, race or sex of the individual. The totals for 'all males' and 'all females', however, always reflect the correct totals.

**Causes of Ovarian Cancer**

It is not clear what causes ovarian cancer. In general, cancer begins when healthy cells acquire a genetic mutation that turns normal cells into abnormal cells. Healthy cells grow and multiply at a set rate, eventually dying at a set time. Cancer cells grow and multiply out of control, and they do not die. The accumulating abnormal cells form a mass (tumour).

**Risk Factors for Ovarian Cancer**

The risk for developing ovarian cancer appears to be affected by several factors:

- The more children a woman has and the earlier in life she gives birth, the lower her risk for ovarian cancer
- Certain gene defects (BRCA1 and BRCA2) are responsible for a small number of ovarian cancer cases. Women with a personal history of breast cancer or a family history of breast or ovarian cancer have an increased risk for ovarian cancer
- Women who take oestrogen replacement only (not with progesterone) for 5 years or more seem to have a higher risk of ovarian cancer
- Birth control pills decrease the risk of ovarian cancer.
- Being infertile or having fertility treatment
- Using a coil (intra-uterine device (IUD)
- Older women are at highest risk for developing ovarian cancer. Most deaths from ovarian cancer occur in women age 55 and older

- Research suggests that the risk of ovarian cancer is slightly higher for women who:
  have medical conditions such as endometriosis
    - smoke tobacco products
    - are obese
    - are tall

**Samuel, D., Diaz-Barbe, A., Pinto, A., Schlumbrecht, M. & George, S.** 2022.
"Besides *BRCA1* and *BRCA2*, several other inheritable mutations have been identified that increase ovarian cancer risk. Surgical excision of the fallopian tubes and ovaries reduces ovarian cancer risk, but for some non-*BRCA* hereditary ovarian cancer mutations the benefit of this intervention is unclear. The fallopian tubes of women with hereditary ovarian cancer mutations provide many insights into the early events of carcinogenesis and process of malignant transformation. Here we review cancer pathogenesis in hereditary cases of ovarian cancer, the occurrence of pre-invasive lesions and occult carcinoma in mutation carriers and their clinical management."

**Caution Expressed Around Consumption of Foods High in Phytoestrogens by Individuals Diagnosed with a Hormone-Sensitive Cancer**
The Cancer Association of South Africa (CANSA) has noted:

- A statement by Memorial Sloan Kettering Cancer Center saying that "… because compounds isolated from rooibos leaves demonstrated estrogenic activity, patients with hormone-sensitive cancers should use caution before taking rooibos." (Memorial Sloan Kettering Cancer Center).

- That phytoestrogens were successfully isolated from rooibos leaves by scientists from the School of Pharmaceutical Sciences, University of Shizuoka, Japan (Shimamura, *et al.*, 2006).

- That according to Deng, et al., (2010), "… there are important safety concerns associated with dietary supplements and foods rich in phytoestrogens, especially for breast cancer patients with hormone-sensitive disease. Based on current evidence, we propose recommendations for advising breast cancer patients, …"

- That, according to Nelles, Hu & Prins (2011), "Early work on the hormonal basis of prostate cancer focused on the role of androgens, but more recently estrogens have been implicated as potential agents in the development and progression of prostate cancer."

- That, according to Reger, *et al*., (2016), "Experimental studies suggest that phytoestrogen intake alters cancer and cardiovascular risk. Some urinary phytoestrogens were associated with cardiovascular and all-cause mortality in a representative sample of 5 179 participants. This is one of the first studies that used urinary phytoestrogens as biomarkers of their dietary intake to evaluate the effect of these bioactive compounds on the risk of death from cancer and cardiovascular disease."

CANSA, therefore, wishes to advise individuals diagnosed with the following hormone-sensitive cancers, namely: Breast Cancer, Ovarian Cancer, Endometrial Cancer, and Prostate Cancer, to:

- use caution before taking Rooibos tea and to discuss the issue around Rooibos tea consumption with their treating Oncologist prior to consuming Rooibos tea
- also use caution before taking the following high phytoestrogen-containing foods: all soy foods (including soybeans, tofu, miso, and tempeh); legumes (especially lentils, peanuts and chickpeas) and flaxseed-containing foods. Patients are advised to discuss consumption of the listed high phytoestrogen-containing foods with their treating Oncologist prior to consuming them.

**Research on Foods High in Phytoestrogens and Breast Cancer**

**Deng, G., Davatgarzadeh, A., Yeung, S. & Cassileth, B**. 2010. Phytoestrogens: science, evidence, and advice for breast cancer patients. *Soc Integr Oncol*. 2010 Winter;8(1):20-30.
"There are important safety concerns associated with dietary supplements and foods rich in phytoestrogens, especially for breast cancerpatients with hormone-sensitive disease. However, no consensus has been reached concerning specific dietary items that should be avoided, and safe levels of potentially problematic foods have yet to be determined. Excellent qualitative reviews of phytoestrogens and breast cancerhave been published. These list agents that contain phytoestrogens and offer general cautions. Quantitative reviews, however, are needed but not yet available. Here we review quantitative data on phytoestrogens, their interaction with estrogen receptors, their bioavailability and pharmacokinetics, and their effects on breast cancer cells and animal models. We also note foods and botanicals with substances that interact with estrogen receptors and discuss the phytoestrogens they contain. Based on current evidence, we propose recommendations for advising breast cancer patients, which may also serve as a basis for the development of clinical practice guidelines."

**Patisaul, H. & Jefferson, W.** 2010. The pros and cons of phytoestrogens. *Front Neuroendocrinol*.. Author manuscript; available in PMC 2011 Apr 12.
Phytoestrogens are plant derived compounds found in a wide variety of foods, most notably soy. A litany of health benefits including a lowered risk of osteoporosis, heart disease, breast cancer, and menopausal symptoms, are frequently attributed to phytoestrogens but many are also considered endocrine disruptors, indicating that they have the potential to cause adverse health effects as well. Consequently, the question of whether or not phytoestrogens are beneficial or harmful to human health remains unresolved. The answer is likely complex and may depend on age, health status, and even the presence or absence of specific gut microflora. Clarity on this issue is needed because global consumption is rapidly increasing. Phytoestrogens are present in numerous dietary supplements and widely marketed as a natural alternative to estrogen replacement therapy. Soy infant formula now constitutes up to a third of the US market, and soy protein is now added to many processed foods. As weak estrogen agonists/antagonists with molecular and cellular properties similar to synthetic endocrine disruptors such as Bisphenol A (BPA), the phytoestrogens provide a useful model to comprehensively investigate the biological impact of endocrine disruptors in general. This review weighs the evidence for and against the purported health benefits and adverse effects of phytoestrogens.

**Rodriquez-Garcia, C., Sánchez-Quesada, C., Toledo, E., Delgado-Rodriquez, M. & Gaforio, J.J.** 2019.
"Dietary guidelines universally advise adherence to plant-based diets. Plant-based foods confer considerable health benefits, partly attributable to their abundant micronutrient (e.g., polyphenol) content. Interest in polyphenols is largely focused on the contribution of their antioxidant activity to

the prevention of various disorders, including cardiovascular disease and cancer. Polyphenols are classified into groups, such as stilbenes, flavonoids, phenolic acids, lignans and others. Lignans, which possess a steroid-like chemical structure and are defined as phytoestrogens, are of particular interest to researchers. Traditionally, health benefits attributed to lignans have included a lowered risk of heart disease, menopausal symptoms, osteoporosis and breast cancer. However, the intake of naturally lignan-rich foods varies with the type of diet. Consequently, based on the latest humans' findings and gathered information on lignan-rich foods collected from Phenol Explorer database this review focuses on the potential health benefits attributable to the consumption of different diets containing naturally lignan-rich foods. Current evidence highlight the bioactive properties of lignans as human health-promoting molecules. Thus, dietary intake of lignan-rich foods could be a useful way to bolster the prevention of chronic illness, such as certain types of cancers and cardiovascular disease."

**Ovarian Cancer and Use of Talc**

There have been several lawsuits in the United States of America against the manufacturer of a popular brand of baby powder which contains talc. Retrospective research was conducted by Cramer, *et al*. (2016). They concluded that multiple studies of ovarian cancer and genital talc use have led only to consensus about possible carcinogenicity. Risks for epithelial ovarian cancer from genital talc use vary by histologic subtype, menopausal status at diagnosis, hormone therapy use, weight, and smoking. These observations suggest that oestrogen and/or prolactin may play a role via macrophage activity and inflammatory response to talc.

**Micha, J.P., Rettenmaier, M.A., Bohart, R. & Goldstein, B.H.** 2022.

"Talc is a desiccant that has been historically used as baby powder by numerous women to enhance their feminine hygiene. Talc has been identified in proximity to asbestos; accordingly, retrospective and case-control studies have implicated the role of talc use in the development of ovarian cancer, whereas prospective evaluations have not documented concordant findings. Moreover, the positive associations derived from case-control studies have been remote and the putative causal factors remain inconclusive. Consequently, one should be circumspect regarding the assertion that genital talc powder application induces ovarian cancer development."

**Protective Factors for Ovarian Cancer**

There's currently nothing that can be done to prevent ovarian cancer. However, there are some things that are thought to protect against ovarian cancer. These are called protective factors. Women with protective factors may still develop ovarian cancer.

Getting enough vitamin D may reduce your risk of developing a number of cancers, including ovarian cancer – although more research needs to be done to be certain.

Research has shown that the following may be associated with a reduced risk of certain types of ovarian cancer:

- Women who have never given birth are more likely to develop ovarian cancer than those who have biological children. The risk seems to decrease with every pregnancy. Breastfeeding may also decrease risk.

- Women who have taken birth control pills have a lower risk of ovarian cancer. Taking the pill for at least five years reduces a women's risk by about 50%. Birth control pills and pregnancy both stop ovulation, and some researchers think that less frequent ovulation lowers the risk of ovarian cancer.
- Tubal ligation (having one's tubes tied) or having a hysterectomy while leaving the ovaries intact may both offer some protection against ovarian cancer.
- Removal of the ovaries is an option for women with genetic mutations that increase their cancer risk. This option can also be considered for women over 40 who are undergoing a hysterectomy.
- No definitive dietary changes have been shown to prevent ovarian cancer. Nevertheless, a study showed that women who consumed a low-fat diet for at least 4 years had a lower risk of ovarian cancer. Other studies showed that ovarian cancer may be less common in women who consume a lot of vegetables. More studies, however, are needed to clarify any relationship between diet and ovarian cancer.

**Prophylactic Oophorectomy**

Prophylactic oophorectomy may significantly reduce one's odds of developing breast cancer and ovarian cancer if one is at high risk. One should weigh the pros and cons of this cancer-prevention option in collaboration with an oncology geneticist and a medical practitioner.

Who can consider prophylactic oophorectomy?

Prophylactic oophorectomy is usually reserved for women with a significantly increased risk of breast cancer and ovarian cancer due to an inherited mutation in the BRCA1 or BRCA2 gene - two genes linked to breast cancer, ovarian cancer and other cancers. Women who have inherited mutations and have completed childbearing are the best candidates for this surgery.

Prophylactic oophorectomy may also be recommended if one has a strong family history of breast cancer and ovarian cancer but no known genetic alteration. It might also be recommended if one has a strong likelihood of carrying the gene mutation based on one's family history but choose not to proceed with genetic testing.

Women who are at risk, could consider this procedure as follows:

- Having a BRCA1 gene mutation: age 35 to 40
- Having a BRCA2 gene mutation: age 45 and older

**Types of Ovarian Cancer**

The type of cell where the cancer begins determines the type of ovarian cancer you have. Ovarian cancer types include:

- Cancer that begins in the cells on the outside of the ovaries. Called epithelial tumours, these cancers begin in the thin layer of tissue that covers the outside of the ovaries. Most ovarian cancers are epithelial tumours
- Cancer that begins in the egg-producing cells. Called germ cell tumours, these ovarian cancers tend to occur in younger women
- Cancer that begins in the hormone-producing cells. These cancers, called stromal tumours, begin in the ovarian tissue that produces the hormones oestrogen, progesterone and testosterone

- The type of ovarian cancer you have helps determine your prognosis and treatment options

**Symptoms of Ovarian Cancer**
Many ovarian cancer symptoms mimic those of less life-threatening conditions such as irritable bowel syndrome. These symptoms may include:

- Bloating
- Pelvic or abdominal pain
- Urinary urgency or frequency
- Difficulty eating or feeling full quickly

**Further Late Stage Symptoms of Ovarian Cancer**
- Spread of the cancer to other organs
- Loss of organ function
- Fluid in the abdomen (ascites)
- Blockage of the intestines

**Early Detection of Ovarian Cancer**
Early detection of ovarian cancer saves women's lives. No screening test exists that can test all women for ovarian cancer. The Pap test does not test for ovarian cancer; it screens for cervical cancer.

**Diagnosis of Ovarian Cancer**
In someone showing the symptoms mentioned above, the doctor may order one or more of the following tests:

Ultrasound - Ultrasound (ultrasonography) is the use of sound waves to create an image on a video screen. Sound waves are released from a small probe placed in the woman's vagina or on the surface of her abdomen. The sound waves create echoes as they enter the ovaries and other organs. The same probe detects the echoes that bounce back, and a computer translates the pattern of echoes into a picture.

Computed Tomography - The CT scan is an x-ray procedure that produces detailed cross-sectional images of your body. Instead of taking one picture, like a conventional x-ray, a CT scanner takes many pictures as it rotates around you. A computer then combines these pictures into an image of a slice of your body. The machine will take pictures of multiple slices of the part of your body that is being studied.

Barium Enema X-ray - This is a test to see whether the cancer has invaded the colon (large intestine) or rectum (it is also used to look for colorectal cancer). After taking laxatives the day before, the radiology technician puts barium sulphate, a chalky substance, into the rectum and colon. Because

barium is impermeable to x-rays (impossible for x-rays to go through), it outlines the colon and rectum on x-rays of the abdomen.

Magnetic Resonance Imaging - MRI scans use radio waves and strong magnets instead of X-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of tissue and by certain diseases. A computer translates the pattern of radio waves given off by the tissues into a very detailed image of parts of the body.

Chest X-ray - This procedure may be done to determine whether ovarian cancer has spread (metastasized) to the lungs.

Positron Emission Tomography (PET scan) - In this test, radioactive glucose (sugar) is given to look for the cancer. Because cancers use glucose (sugar) at a higher rate than normal tissues, the radioactivity will tend to concentrate in the cancer. A scanner can spot the radioactive deposits.

**Where Ovarian Cancer May Spread to in the Body**

Should ovarian cancer spread (metastasise) in the body, it would most probably spread as indicated below:

| **Cancer Type:** | **Main Sites of Metastasis (Spread)** |
|---|---|
| Bladder | Bone, liver, lung |
| Breast | Bone, brain, liver, lung |
| Colon | Liver, lung |
| Colorectal | Liver, lung, peritoneum (lining of abdomen) |
| Kidney | Adrenal gland, bone, brain, liver, lung |
| Lung | Adrenal gland, bone, brain, liver, other lung |
| Melanoma | Bone, brain, liver, lung, skin, muscle |
| **Ovary** | **Liver, lung, peritoneum (lining of abdomen)** |
| Pancreas | Liver lung, peritoneum (lining of abdomen) |
| Prostate | Adrenal gland, bone, liver, lung |
| Stomach | Liver, lung, peritoneum (lining of abdomen), ovaries |
| Thyroid | Bone, liver, lung |
| Uterus | Boner, liver, lung, peritoneum (lining of abdomen), vagina |
| Non-melanoma skin cancer | Very rare: lymph nodes, lung, bone (if in head/neck region) |

**Treatment of Ovarian Cancer**

Treatment for ovarian cancer usually involves a combination of surgery and chemotherapy. Less often, treatment may include radiotherapy. The type of treatment women receive depends on the type and stage of their ovarian cancer and their general health. Treatment is best managed by a gynaecological oncologist.

*Surgery*

Nearly all women who have ovarian cancer will require surgery. Sometimes, it is not possible to confirm the stage of the cancer until the surgery.

*Chemotherapy*

Chemotherapy involves using anti-cancer (cytotoxic) drugs to kill cancer cells. It is often given after surgery for ovarian cancer. In some cases, it can be given before surgery as it may help to shrink the tumour and make it easier to remove. This is called neo-adjuvant chemotherapy.

**Porter, R & Matulonis, U.S.** 2022.

"Epithelial ovarian cancer (EOC) is the most lethal gynecologic malignancy, with poor survival rates among patients who have advanced disease despite recent significant advances in therapy, including therapy targeting the homologous recombination pathway. Evidence that cell-mediated antitumor immunity, as well as documented programmed death ligand 1 expression, is correlated with improved survival in EOC garnered early optimism regarding the utility of immune checkpoint blockade (ICB) in ovarian cancer. However, the results of multiple clinical trials investigating ICB have revealed very low levels of activity of single-agent immune checkpoint inhibitors, and the testing of combination therapies has not yet identified any combinations with robust activity in a significant proportion of patients who have EOC. In this review, we summarize the results of the major studies of ICB monotherapy and combinations; review novel combinations under investigation, including ICB with cellular therapies; and discuss potential candidate biomarkers for improving the selection of patients who may respond to ICB."

Radiotherapy

Radiotherapy uses high energy X-rays. Like chemotherapy, it works by targeting rapidly growing cancer cells. Radiotherapy is not often used to treat ovarian cancer. But occasionally, the multidisciplinary team may recommend it for ovarian cancer treatment under very specific circumstances, such as treating pain and bleeding from a localised tumour mass.

**Durno, K. & Powell, M.E.** 2022.

"Epithelial ovarian cancer accounts for around 1.9% of all malignancies and often presents late at an advanced stage. Prognosis is therefore poor. Currently the mainstay of treatment is radical cytoreductive surgery and chemotherapy but, in the past, the standard of care also included adjuvant whole abdominal radiotherapy. This is no longer standard practice, largely due to high toxicity rates and the effectiveness of platinum-based chemotherapy. Presently, a role is emerging for modern radiotherapy techniques in both the salvage and palliative settings. This review aims to examine the historical use of radiotherapy in ovarian cancer before looking forward to its potential future role."

**About Clinical Trials**

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.
Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The South African National Clinical Trials Register provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides

information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: https://pactr.samrc.ac.za/

**Medical Disclaimer**

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/ estate/heirs) relating to the use of any information contained in this Fact Sheet.

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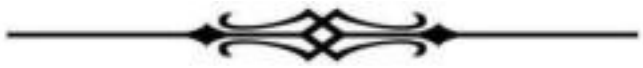

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