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Cancer: Causes, Types, Treatment and Care

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Cancer: Causes, Types, Treatment and Care

Our bodies replace old cells every day, under strict rules. **Cancer begins when some cells break those rules and keep dividing.**

At a Glance

Six facts to hold on to.

01
What it is

Cells divide without control and invade nearby tissue.

02
India, 2024

About 15.3 lakh estimated new cases.

03
World, 2024

About 20.6 million new cases and 9.8 million deaths.

04
Top sites in India

Men: lung and mouth. Women: breast and cervix.

05
TNM staging

Tumour size, lymph Nodes, Metastasis.

06
Two awareness days

4 February (world) and 7 November (India).

TumourA lump of extra cells. It can be benign (not cancer) or malignant (cancer).
MetastasisSpread of cancer cells to a distant part of the body.

ApoptosisPlanned cell death. Healthy cells die on schedule; cancer cells ignore the signal.
BiopsyRemoving a small tissue sample to check it under a microscope.
CarcinogenAnything that can cause cancer, such as tobacco smoke or asbestos.
Palliative care Care that eases pain and stress, from diagnosis onward.

What Is Cancer?

Cancer is a disease in which cells divide without control and spread into nearby tissues. The World Health Organization (WHO) describes it as the rapid creation of abnormal cells. These cells grow beyond their usual boundaries.

Healthy cells follow rules

- A normal cell divides only when it gets a growth signal.
- It stops dividing when told to stop. When it is old or damaged, it dies on schedule.
- That planned death is called **apoptosis**, or programmed cell death.

Cancer cells break the rules

- Cancer cells grow even without growth signals.
- They ignore signals that tell them to stop dividing or to die.
- They tell blood vessels to grow toward the tumour. Textbooks call this **angiogenesis**.
- These vessels bring oxygen and food, and they carry away waste.
- Some cancer drugs stop these vessels from growing. That starves the tumour.
- Cancer cells can also hide from the immune system. Some even trick immune cells into protecting the tumour.

Benign or malignant?

A tumour is a lump of extra cells. Not every tumour is cancer. A **benign** tumour stays in place. A **malignant** tumour is cancer, and it can invade and spread.

Feature	Benign	Malignant
Invades nearby tissue	No	Yes
Spreads to distant sites	No	Can spread
Grows back after removal	Usually not	Sometimes
Can be dangerous	Sometimes, for example in the brain	Yes

Steps before cancer

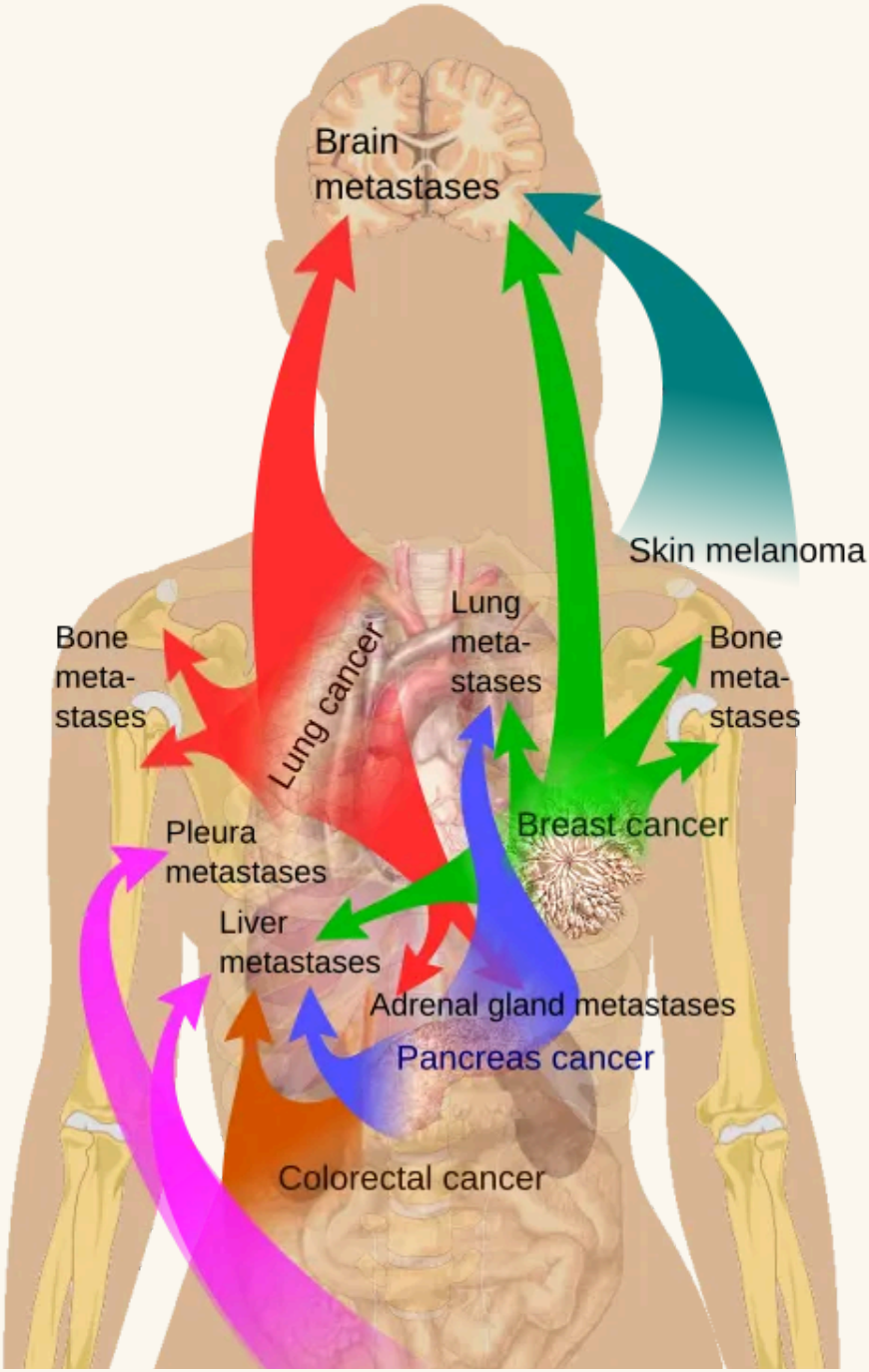
- **Hyperplasia:** extra cells that still look normal under a microscope.
- **Dysplasia:** extra cells that look abnormal. This is not yet cancer.
- **Carcinoma in situ:** abnormal cells that have not invaded nearby tissue. It is sometimes called stage 0.

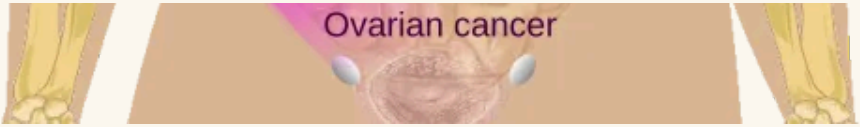
Remember: “tumour” does not always mean “cancer”. Only a malignant tumour is cancer.

> **Quick check 1.** A benign tumour can never be dangerous. *(True or False?)* See answer ↓

How Does Cancer Spread?

Cancer spreads when cells break away from the first tumour and travel through the blood or the lymph system. They settle in a new place and grow there. This spread to distant sites is called **metastasis**.


Brain metastases
Skin melanoma
Bone meta-stases
Lung cancer
Lung meta-stases
Bone meta-stases
Breast cancer
Pleura metastases
Liver metastases
Adrenal gland metastases
Pancreas cancer
Colorectal cancer



Common places where cancers spread. Diagram: Mikael Häggström, CC0, via Wikimedia Commons.

A spread cancer keeps its first name

- A metastatic tumour keeps the name of the cancer it came from.
- Say breast cancer reaches the lung. Doctors call it **metastatic breast cancer**, not lung cancer.
- Why? The cells in the lung are still breast cancer cells.

Why spread matters

- Most people who die of cancer die of metastatic disease.
- WHO also calls metastasis the primary cause of cancer deaths.
- This is one reason screening tries to find cancer before it spreads.

> **Quick check 2.** Breast cancer that spreads to the lung is renamed lung cancer. *(True or False?)* See answer ↓

Which Genes Go Wrong?

Cancer is a genetic disease. It is caused by changes to the genes that control how cells grow and divide.

Where gene changes come from

- **Copying errors:** mistakes can happen when a cell divides.
- **Damage:** tobacco chemicals and ultraviolet rays can damage DNA.
- **Inheritance:** some changes are passed down from parents.

Three kinds of genes

Think of a car. An **oncogene** is like a stuck accelerator. A broken **tumour suppressor gene** is like a failed brake. This is only a memory aid, but it helps.

Gene type	Normal job	When it goes wrong	Example
Proto-oncogene	Helps cells grow and divide	Becomes an oncogene that cannot be turned off	—
Tumour suppressor gene	Slows or stops cell growth	Growth runs out of control	p53
DNA repair gene	Fixes damaged DNA	More mutations build up	BRCA1, BRCA2

Two famous genes

- **p53** (gene name TP53) is a tumour suppressor. It responds when a cell is under stress.
- Working p53 can stop a damaged cell, or push it into apoptosis.
- TP53 is the **most frequently altered gene in human tumours**.
- An inherited TP53 change causes **Li-Fraumeni syndrome**, a family cancer syndrome.
- **BRCA1 and BRCA2** make proteins that help repair damaged DNA.
- A harmful inherited BRCA change raises the risk of breast and ovarian cancer.
- More than 60% of women with such a change develop breast cancer in their lifetime. They also tend to get it younger.

Why age matters

- Cancer-causing changes build up slowly over the years.
- The body normally removes cells with damaged DNA. This ability falls with age.
- So cancer risk rises later in life.

What Raises Cancer Risk?

A risk factor is anything that makes cancer more likely. Having one does not mean a person will get cancer. Doctors usually cannot say exactly why one person gets cancer and another does not.

The main risk factors are age, alcohol, cancer-causing substances, long-lasting inflammation, diet, hormones, a weak immune system, infections, obesity, radiation, sunlight and tobacco. Some can be avoided. Others, like growing older, cannot.

Tobacco: the biggest avoidable cause

- Tobacco smoke has many chemicals that damage DNA.
- Tobacco causes cancers of the lung, mouth, throat, food pipe (oesophagus), bladder, kidney, liver, stomach, pancreas and cervix.
- It also causes acute myeloid leukaemia, a blood cancer.
- Smokeless tobacco raises the risk of cancers of the mouth, oesophagus and pancreas.
- There is **no safe level of tobacco use**.
- Tobacco kills more than 7 million people each year. Over 1.6 million of them do not smoke.

Alcohol, weight and lifestyle

- Alcohol raises the risk of cancers of the mouth, throat, oesophagus, voice box, liver and breast.
- The risk is much higher for people who both drink and use tobacco.
- Obesity raises the risk of cancers of the colon, rectum, womb lining (endometrium), oesophagus, kidney, pancreas and gallbladder.
- Eating too little fruit and vegetables is a preventable risk. So is too little physical activity.
- Air pollution raises the risk of lung cancer.

Infections that can lead to cancer

About **10% of cancers** diagnosed worldwide in 2022 were linked to infections. In low and lower-middle-income countries, the share is roughly 30%.

- **HPV (human papillomavirus):** long-lasting infection with high-risk types causes almost all cervical cancer.
- **Hepatitis B and C viruses:** chronic infection can cause liver cancer.

- **Epstein-Barr virus (EBV):** linked to some lymphomas and cancers of the nose and throat. No vaccine prevents it.
- **H. pylori:** a stomach bacterium on the list of cancer-linked infections.
- Some infections cause long-lasting inflammation. That inflammation may lead to cancer.

Radiation: not all kinds are equal

- **Ionising radiation** has enough energy to damage DNA. Examples are X-rays, gamma rays and radon gas.
- **Non-ionising radiation** has less energy. Examples are visible light and mobile phone signals.
- Non-ionising radiation has **not been found to cause cancer**.
- Ultraviolet (UV) rays from the sun, sunlamps and tanning beds can damage skin. They can lead to skin cancer.

How experts grade carcinogens

The International Agency for Research on Cancer (IARC), part of WHO, sorts possible causes into groups.

IARC group	Meaning	Agents listed (as of 3 July 2026)
Group 1	Carcinogenic to humans	135
Group 2A	Probably carcinogenic	98
Group 2B	Possibly carcinogenic	329
Group 3	Not classifiable	498

- Group 1 includes tobacco smoking, smokeless tobacco and second-hand smoke.

- It also includes alcoholic drinks, asbestos, benzene, aflatoxins and solar radiation.
- Betel quid, with or without tobacco, is in Group 1. So is eating processed meat.
- Red meat is in Group 2A, “probably carcinogenic”.
- HPV types 16 and 18 are among twelve HPV types in Group 1. Types 6 and 11 are in Group 3.

Remember: the groups show how strong the evidence is. They do not show how dangerous something is. Processed meat and cigarettes share Group 1, but their risk levels are very different.

> **Quick check 3.** Mobile phone signals are non-ionising radiation and have not been found to cause cancer. *(True or False?)* See answer ↓

What Are the Main Types?

There are more than 100 types of cancer. Most are named after the organ or tissue where they start. Doctors also group them by the kind of cell they start in.

Type	Starts in	Example
Carcinoma	Epithelial cells that cover body surfaces	Most breast, colon and prostate cancers
Sarcoma	Bone and soft tissue	Osteosarcoma
Leukaemia	Blood-forming tissue in the bone marrow	Acute and chronic forms
Lymphoma	Lymphocytes (T cells and B cells)	Hodgkin and non-Hodgkin

Type	Starts in	Example
Multiple myeloma	Plasma cells	Tumours in bones
Melanoma	Melanocytes, which make the pigment melanin	Skin melanoma

A closer look

- **Carcinomas** are the most common type.
- **Adenocarcinoma** starts in cells that make fluids or mucus. **Squamous cell carcinoma** starts in flat cells of the skin and organ linings.
- **Sarcomas** form in bone, muscle, fat, blood vessels and tendons. Osteosarcoma is the most common bone cancer.
- **Leukaemias** usually do not form solid lumps. Abnormal white cells crowd out normal blood cells.
- Acute leukaemias grow fast. Chronic ones grow slowly.
- **Hodgkin lymphoma** shows special abnormal cells called Reed-Sternberg cells.
- Brain and spinal cord tumours are named by cell type and place. They can be benign or malignant.

The most common cancers

Rank (India, 2022)	Men	Women
1	Lung (10.6%)	Breast (28.8%)
2	Mouth (8.4%)	Cervix (10.6%)
3	Prostate (6.1%)	Ovary (6.2%)

- These figures come from the Indian Council of Medical Research's National Cancer Registry Programme (ICMR-NCRP).

- In children, **lymphoid leukaemia** leads: 29.2% of cancers in boys and 24.2% in girls.
- Worldwide in 2024, lung cancer was most common, with about 2.6 million new cases. Female breast (2.4 million) and colorectal (2.0 million) came next.

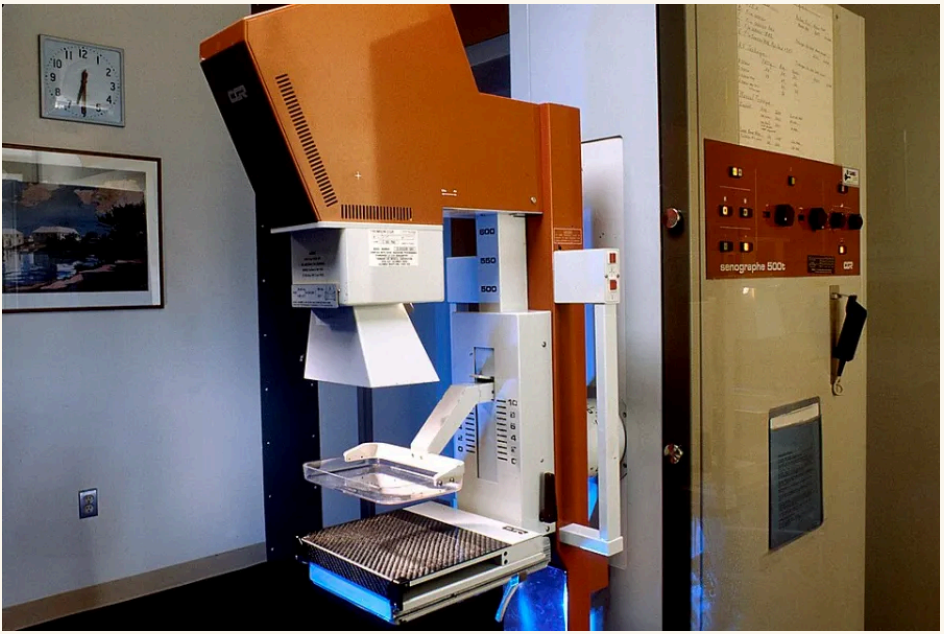
How Is Cancer Found?

Screening looks for cancer in people with no symptoms. Diagnosis confirms cancer after a symptom or a worrying screening result. No single test can diagnose cancer. Doctors combine several.

The tests doctors use

- **Biopsy:** a doctor removes a tissue sample, and a pathologist studies it under a microscope. A biopsy is often **the only way to be sure** it is cancer.
- **CT scan:** X-rays and a computer build 3-D pictures of organs.
- **MRI:** a strong magnet and radio waves take slice-like pictures.
- **PET scan:** uses radioactive glucose (sugar). Cancer cells often take up more glucose than healthy cells, so they light up.
- **Ultrasound** uses sound waves. Plain **X-rays** use low doses of radiation.
- **Tumour markers:** substances that cancer cells make in much higher amounts. They help with diagnosis, treatment and follow-up.
- Abnormal lab results alone are not a sure sign of cancer.
- **Liquid biopsy:** looks for tumour cells or tumour DNA in a blood sample.

Screening tests for common cancers



A mammography machine. Photo: Bill Branson, public domain, via Wikimedia Commons.

- **Mammogram:** an X-ray of the breast. It can find tumours early, before symptoms appear.
- **Clinical breast examination (CBE):** a physical check by a trained health worker. It is low-cost, but it can miss some cancers.
- **Pap test:** collects cells from the cervix. It finds changes caused by HPV that could turn into cancer.
- **HPV test:** checks for infection with high-risk HPV types.
- **VIA (visual inspection with acetic acid):** a health worker applies dilute vinegar to the cervix and looks for changes. It suits places with few laboratories.
- **Oral visual examination (OVE):** a check of the mouth for early signs of oral cancer.

India’s screening drive

- India began population-based screening in 2016. It covers **oral, breast and cervical cancer** for people aged 30 and above.
- It now runs under the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD). The programme was renamed from NPCDCS in 2023.
- ASHA workers use a checklist form (CBAC) to find people at risk. They bring them to screening.
- Women aged 30 to 65 are screened for cervical cancer by VIA at sub-centres and primary health centres.
- Per the operational framework, screening is once every 5 years for ages 30 to 65.
- Anyone who tests positive is referred to a specialist for confirmation, often with a biopsy.
- By 20 July 2025, 10.18 crore of 25.42 crore eligible women had been screened for cervical cancer. (Source: PIB)

Staging: how far has it gone?

The **stage** tells how big a tumour is and whether it has spread. **TNM** is the most widely used system.

Letter	Stands for	What it tells you
T	Tumour	Size and extent of the main tumour
N	Nodes	Whether nearby lymph nodes have cancer
M	Metastasis	M0 means no distant spread. M1 means it has spread.

- Stage 0 is carcinoma in situ. Stage IV means spread to distant parts.
- Brain tumours and blood cancers use different staging systems.

> **Quick check 4.** A biopsy is often the only way to be sure that a growth is cancer. *(True or False?)* See answer ↓

How Is Cancer Treated?

Most people get a mix of treatments, such as surgery with chemotherapy and radiation. The choice depends on the cancer's type and stage.

The main treatments

- **Surgery:** a surgeon removes the cancer from the body.
- **Chemotherapy:** drugs that kill or stop fast-growing cells. They also hit some healthy fast-growing cells.
- **Radiation therapy:** high doses of radiation kill cancer cells and shrink tumours.
- **Hormone therapy:** slows or stops breast and prostate cancers that need hormones to grow.
- **Immunotherapy:** helps the body's own immune system fight cancer.
- **Targeted therapy:** goes after the proteins that control how cancer cells grow and spread.
- **Stem cell transplant:** restores blood-forming cells destroyed by high-dose treatment.

Immunotherapy in simple words

- The immune system has "checkpoints" that stop it from becoming too strong.

- **Checkpoint inhibitors** block these brakes, so immune cells attack the cancer.
- **T-cell transfer therapy** boosts a patient's T cells. They are often changed in a lab and put back through a vein.
- Side effects come when the boosted immune system also attacks healthy tissue.

Targeted drugs and transplants

- Most targeted drugs are small molecules or **monoclonal antibodies**.
- Monoclonal antibodies are lab-made proteins. They attach to specific targets on cancer cells.
- A **biomarker test** checks a tumour for these targets. It may need a biopsy.
- Stem cell transplants are used mostly for leukaemia, lymphoma, multiple myeloma and myelodysplastic syndromes.
- In leukaemia, donor cells can attack leftover cancer cells. This is the graft-versus-leukaemia effect.

India's own CAR-T therapy

- **NexCAR19** is India's first home-grown CAR-T cell therapy. CAR-T is a type of T-cell transfer therapy.
- It was developed by IIT Bombay, Tata Memorial Centre and the company ImmunoACT. It is meant for blood cancers.
- The Central Drugs Standard Control Organisation (CDSCO) approved it for the market in October 2023.
- It was launched in April 2024. Its expected cost was about US$50,000, a fraction of imported CAR-T therapy. (Source: PIB)

Can Cancer Be Prevented?

Many cancers can be prevented. The biggest tools are avoiding tobacco, vaccines against cancer-causing viruses, and regular screening. A healthy diet, exercise and a healthy weight may also lower the risk of some cancers.

Cervical cancer: a cancer we can eliminate

- Almost all cervical cancer comes from long-lasting infection with high-risk HPV.
- Going from HPV infection to cancer typically takes **15 to 20 years**. That gives time to catch it.
- WHO prioritises HPV vaccination for girls aged 9 to 14, before they become sexually active.
- WHO defines elimination as 4 or fewer new cases per 100,000 women a year.

WHO 2030 target	Goal
Vaccinate	90% of girls fully vaccinated by age 15
Screen	70% of women screened by ages 35 and 45
Treat	90% of detected cases treated

India’s HPV vaccination programme

- PM Narendra Modi launched the nationwide programme on **28 February 2026 at Ajmer**, Rajasthan.
- The vaccine is free at government facilities for about 1.15 crore girls aged 14.
- It uses a **single dose of Gardasil-4**, procured with Gavi, the Vaccine Alliance. It protects against HPV types 6, 11, 16 and 18.

- Registration is on the U-WIN platform. Vaccine stocks are tracked on eVIN. (Source: PIB)
- HPV types 16 and 18 cause more than 80% of cervical cancers in India.

Cervavac: India's own HPV vaccine

- **Cervavac** is a quadrivalent HPV vaccine from the Serum Institute of India. It also covers types 6, 11, 16 and 18.
- It was developed with the Department of Biotechnology (DBT), BIRAC and the Gates Foundation.
- The Drugs Controller General of India (DCGI) approved it in July 2022.
- Cervavac is not the vaccine used in the 2026 national programme. Girls already vaccinated with any HPV vaccine are left out of that drive.

Hepatitis B vaccine

- Hepatitis B can lead to cirrhosis and liver cancer.
- The vaccine gives nearly 100% protection. The first dose should be given within 24 hours of birth.

India's tobacco law: COTPA 2003

India passed the **Cigarettes and Other Tobacco Products Act (COTPA)** in 2003. Its key sections are easy to remember.

Section	Rule
4	No smoking in public places. The 2008 rules added workplaces.
5	No direct or indirect advertising, promotion or sponsorship

Section	Rule
6(a)	No sale to anyone under 18
6(b)	No sale within 100 yards of any educational institution
7	Graphic health warnings on packs

Healthy habits are also promoted through FSSAI's Eat Right India campaign and the Fit India Movement. The AYUSH ministry promotes yoga.

> **Quick check 5.** India's national HPV vaccination programme, launched in 2026, uses Cervavac. *(True or False?)* See answer ↓

How Does India Fight Cancer?

India had an estimated 15,33,055 cancer cases in 2024, or about 15.3 lakh. This ICMR-NCRP estimate was given to the Lok Sabha on 8 August 2025. (Source: Down To Earth)

Current Affairs: the numbers

- **World, 2024:** about **20.6 million new cases and 9.8 million deaths**, per IARC's GLOBOCAN 2024 estimates. (Source: IARC)
- About 1 in 5 people develop cancer in their lifetime. About 1 in 9 men and 1 in 13 women die from it. (Source: IARC)
- New cases may reach about 34.4 million by 2050. That is a 67% rise from 2024. (Source: IARC)
- **India, 2022:** about 14.6 lakh cases, a crude rate of 100.4 per 100,000 people.

- An Indian’s lifetime risk of cancer, from birth to age 74, is about 1 in 9.
- People aged 40 to 64 carry roughly half of all cases.
- Cervical cancer causes over 1.2 lakh cases and nearly 80,000 deaths a year in India. India has about 25% of the world’s cervical cancer deaths.
- The government links rising counts to better diagnosis, longer lives, more older people and greater awareness.



Homi Bhabha Block, Tata Memorial Hospital, Mumbai. Photo: Reetesh Chaurasia, CC BY-SA 4.0, via Wikimedia Commons.

Schemes that help patients

Scheme	What it does
NP-NCD (earlier NPCDCS)	Screening and NCD clinics for oral, breast and cervical cancer, under the National Health Mission
Ayushman Bharat PM-JAY (2018)	Covers chemotherapy, radiotherapy and cancer surgery for eligible families
Health Minister's Cancer Patient Fund (2009)	One-time aid of up to Rs 15 lakh for poor (BPL) patients
National Cancer Grid (2012)	A network of 287 cancer centres that set common care standards

- As on 31 March 2025, NP-NCD had 770 District NCD Clinics and **364 District Day Care Centres**. (Source: PIB)
- The Health Minister's Cancer Patient Fund sits under Rashtriya Arogya Nidhi. Its aid is for treatment at Regional Cancer Centres, State Cancer Institutes and other government hospitals. (Source: PIB)
- National Cancer Grid centres treat over 7.5 lakh new patients a year. That is over 60% of India's cancer burden.
- Over 90% of registered cancer patients had begun treatment under PM-JAY till 2024.
- India has 19 State Cancer Institutes and 20 Tertiary Care Cancer Centres. The National Cancer Institute at Jhajjar, Haryana, is a key centre.

Should every cancer case be reported?

Some diseases must be reported to the government by law. These are called notifiable diseases. Think of TB or cholera. A doctor who finds a case must tell the health authorities. Cancer is not on that list

everywhere.

Is cancer notifiable? 36 States and UTs



Supreme Court order, 11 August 2026

Notifiable = every new case must be reported to the government.

Fewer than half of India's States and UTs had made cancer notifiable.

- On **11 August 2026**, the Supreme Court told **19 States and UTs** to declare cancer a notifiable disease.
- Only **17 of 36** States and UTs had done so. They acted on a parliamentary standing committee report.
- A Bench headed by Chief Justice **Surya Kant** passed the order. It came on a PIL filed by Dr Anurag Srivastava.
- The court asked the Centre why it had not issued **uniform guidelines** for all States.
- The PIL linked the issue to the **right to health** under Articles 14 and 21.
- Why do States decide? **Public health** is a State subject, under entry 6 of the State List.
- Why does it help? Every case gets counted. That means better data, earlier detection and better planning.

(Source: The Hindu)

Budget 2025-26 steps

- Day Care Cancer Centres will open in all district hospitals within three years. **200 are planned in 2025-26**.
- These centres aim to bring chemotherapy closer to home.
- 36 lifesaving drugs were fully exempted from basic customs duty. Six more were put at 5%. (Source: PIB)

Awareness days

- **World Cancer Day** is on **4 February**. It is led by the Union for International Cancer Control (UICC).
- It began with the Charter of Paris, adopted on 4 February 2000. The 2025-2027 theme is “United by Unique”.
- **National Cancer Awareness Day** is on **7 November**, observed yearly since 2014.
- 7 November is the birth anniversary of the scientist Marie Curie.

> **Quick check 6.** By August 2026, every State and UT had declared cancer a notifiable disease. *(True or False?)* See answer ↓

How Can Families Give Care?

Caring for a person with cancer means looking after the body, the mind and the family. Doctors call much of this **palliative care**. It improves quality of life for patients and families facing a life-threatening illness.

Palliative care is not only for the end

- Palliative care can start at diagnosis. Treatment of the cancer continues alongside it.

- It gives pain and symptom relief. It also offers emotional, social and spiritual support.
- It helps families too, including practical help and grief counselling.
- Early palliative care reduces unnecessary hospital stays.
- About 56.8 million people need palliative care each year. Only about 14% get it.

Pain relief and the morphine gap

- Strong pain medicines called opioids, such as morphine, are essential for cancer pain.
- Access is very unequal. In 2018, 79% of the world's people used only 13% of the morphine consumed.
- In India, strict narcotics rules once made morphine hard to get. The Lawyers Collective said medical use fell 97% after the NDPS Act came into force.
- The **NDPS Amendment Act, 2014** created a new class called "essential narcotic drugs". One set of central rules now covers them across India.
- The amendment also added a new aim: promoting the medical use of these drugs.
- The rules came on 5 May 2015. They cover six drugs, including morphine and fentanyl. Recognised Medical Institutions can stock and dispense them.

India's palliative care models

- The National Programme for Palliative Care followed an expert group report in November 2012. It is funded through the National Health Mission.
- Care can be given in big hospitals, community health centres and patients' homes.

- **Kerala** launched India's first state Palliative Care Policy in 2008.
- Kerala's **Neighbourhood Network in Palliative Care** is run by community volunteers. Dr Suresh Kumar conceived it at the Institute of Palliative Medicine, Kozhikode.

Daily care at home

- A caregiver may help with doctor visits, food, medicines and bathing. Emotional support matters just as much.
- **Watch for infection.** Chemotherapy lowers white blood cells, so infections become more likely.
- Report a fever of 38°C (100.5°F) or more, chills or a sore throat to the care team at once.
- Do not give fever medicine before asking the doctor. It can hide a serious infection.
- Good hand washing helps prevent infection.
- **Help with eating.** Offer small meals five to six times a day, with high-protein, high-calorie foods.
- Keep food at safe temperatures, and scrub raw fruit and vegetables.
- For mouth sores, soft, cold or room-temperature foods are easier to eat.

Look after the caregiver too

- Many caregivers put their own needs aside. Over time, this harms their health.
- Stress, poor food and too little sleep can weaken the caregiver's own immunity.
- Talking about feelings helps. So does a support group or a counsellor.

- Many caregivers wish they had asked friends and family for help sooner.
- Financial help exists. PM-JAY and the Health Minister's Cancer Patient Fund can ease costs.

Palliative care or hospice?

Point	Palliative care	Hospice care
When	Any time, from diagnosis onward	When treatments no longer control the disease
Cancer treatment	Continues alongside	Focus shifts to comfort
Aim	Better quality of life	Caring, not curing

- Hospice is not meant to hasten or postpone death.
- It most often takes place at home. It can also be in hospitals and care homes.
- The team usually includes doctors, nurses, counsellors, social workers and trained volunteers.
- Choosing hospice does not mean giving up hope. Pain in advanced cancer can be managed.

End-of-life choices and the law

- In **Common Cause v Union of India** (9 March 2018), a five-judge Constitution Bench allowed **passive euthanasia**.
- Passive euthanasia means withholding or withdrawing life support. Life is then not prolonged artificially.
- The court held that the right to die with dignity is part of **Article 21**.
- An adult with mental capacity can refuse medical treatment, even life-saving treatment.

- Active euthanasia, such as a lethal injection, is different. The 2018 ruling did not allow it.
- The court also allowed a **living will**: a written wish about treatment if a person can no longer decide.

Living will step	2018 guidelines	After 24 January 2023
Who attests it	Two witnesses, countersigned by a Judicial Magistrate (First Class)	A notary or gazetted officer, with two witnesses
Medical board decision	No fixed time limit	Within 48 hours
Magistrate's role	Approval	Only informed
If the board refuses	High Court writ (Article 226)	Relatives can approach the High Court

- On 11 March 2026, the Supreme Court permitted passive euthanasia in Harish Rana's case. It was the first full use of these guidelines. It was not a cancer case. (Source: SC Observer)
- The court said withholding treatment must be humane. It must not amount to "abandonment".

> **Quick check 7.** The Supreme Court's 2018 Common Cause judgment allowed active euthanasia. *(True or False?)* See answer ↓

Think it through: why does a cancer that spreads to the bone stay “breast cancer”?

A cancer’s name tells you which cells it is made of, not where it now sits. Breast cancer cells that reach the bone are still breast cancer cells. So doctors call it metastatic breast cancer. The name points back to where the cancer began.

Quick Q&A

What is apoptosis?

Programmed cell death. Cancer cells ignore it.

What does TNM stand for?

Tumour, Nodes and Metastasis.

Which virus causes almost all cervical cancer?

High-risk human papillomavirus (HPV).

What is NexCAR19?

India’s first home-grown CAR-T cell therapy, for blood cancers.

How many States and UTs did the Supreme Court tell to make cancer notifiable in 2026?

19. Only 17 of 36 had done it.

When is National Cancer Awareness Day?

7 November, Marie Curie’s birth anniversary.

Related Topics

All General Science Articles

The National Cancer Grid

Monoclonal Antibodies

Nano-robots for Targeted Cancer Therapy

Genetic Medicine: How Gene Therapy Works

CRISPR Gene Editing Technology

ICMR

MCQ on Cancer

8 verified questions from this lesson.

 More General Science Practice

Practice MCQs

1. Consider the following statements about genes and cancer:
1. A proto-oncogene that becomes altered or overactive turns into an oncogene.
2. p53 is an oncogene that pushes cells to keep dividing.
3. BRCA1 and BRCA2 make proteins that help repair damaged DNA.
Which of the statements given above is/are correct?

A. 1 and 2 only

B. 1 and 3 only

C. 2 and 3 only

D. 1, 2 and 3

See answer ↓

2. Match List I (type of cancer) with List II (where it starts):
List I: A. Carcinoma B. Sarcoma C. Lymphoma D. Multiple myeloma
List II: 1. Lymphocytes 2. Epithelial cells 3. Plasma cells 4. Bone and soft tissue
Select the correct answer:

A. A-2, B-1, C-4, D-3

B. A-4, B-2, C-1, D-3

C. A-2, B-4, C-3, D-1

D. A-2, B-4, C-1, D-3

See answer ↓

3. In the TNM system used to stage cancer, what does the letter 'M' stand for?

A. Mutation

B. Margin

C. Metastasis

D. Malignancy

See answer ↓

4. Assertion (A): India's nationwide HPV vaccination programme, launched on 28 February 2026, uses the Cervavac vaccine.
Reason (R): Cervavac is a quadrivalent HPV vaccine made by the Serum Institute of India.
Select the correct answer:

A. Both A and R are true, and R is the correct explanation of A

B. Both A and R are true, but R is not the correct explanation of A

C. A is true, but R is false

D. A is false, but R is true

See answer ↓

5. Arrange the following in chronological order:
1. India enacts the Cigarettes and Other Tobacco Products Act (COTPA)
2. Supreme Court allows passive euthanasia in Common Cause v Union of India
3. NDPS Amendment Act creates the class of 'essential narcotic drugs'
4. India launches its nationwide HPV vaccination programme
Select the correct order:

A. 1-2-3-4

B. 1-3-4-2

C. 1-3-2-4

D. 3-1-2-4

See answer ↓

6. In August 2026, the Supreme Court directed how many States and UTs to declare cancer a notifiable disease?

A. 17

B. 28

C. 36

D. 19

See answer ↓

7. Which institution coordinates the National Cancer Grid?

A. The Tata Memorial Centre, Mumbai

B. The All India Institute of Medical Sciences, Delhi

C. The Post Graduate Institute of Medical Education, Chandigarh

D. The Indian Council of Medical Research

See answer ↓

8. 'World Cancer Day' is observed every year on which date?

A. 12 February

B. 4 February

C. 19 February

D. 17 January

See answer ↓

Answer Key

1. **B.** Statements 1 and 3 are correct. An altered proto-oncogene becomes an oncogene that cannot be switched off. BRCA1 and BRCA2 help repair DNA. Statement 2 is wrong: p53 is a tumour suppressor, not an oncogene. It slows damaged cells or pushes them into apoptosis. ↑ Q1
2. **D.** Carcinoma starts in epithelial cells, which cover body surfaces. Sarcoma starts in bone and soft tissue. Lymphoma starts in lymphocytes, the T and B cells. Multiple myeloma starts in plasma cells. So the match is A-2, B-4, C-1, D-3. ↑ Q2
3. **C.** M stands for metastasis, the spread of cancer to distant parts of the body. M0 means no distant spread, and M1 means it has spread. T is the main tumour, and N is nearby lymph nodes. ↑ Q3
4. **D.** A is false. The 2026 programme uses a single dose of Gardasil-4, procured with Gavi. R is true. Cervavac is a quadrivalent vaccine from the Serum Institute of India, approved by DCGI in July 2022. Both vaccines cover HPV types 6, 11, 16 and 18, which makes this an easy mix-up. ↑ Q4
5. **C.** COTPA came in 2003. The NDPS Amendment Act followed in 2014. The Common Cause judgment was delivered on 9 March 2018. The HPV vaccination programme was launched on 28 February 2026. So the order is 1-3-2-4. ↑ Q5
6. **D.** 17 of 36 States and UTs had already notified cancer. The court directed the other 19 to do so. ↑ Q6
7. **A.** The Tata Memorial Centre in Mumbai coordinates the NCG network. ↑ Q7
8. **B.** The day aims to raise cancer awareness and encourage prevention and treatment. ↑ Q8

Quick-check answers

1. **False.** ↑ 1
2. **False.** ↑ 2
3. **True.** ↑ 3
4. **True.** ↑ 4
5. **False.** ↑ 5

6. **False.** ↑ 6

7. **False.** ↑ 7

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