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Occupational and Environmental Cancers

Cancer Ready Reckoner for Industrial Physicians & Occupational Health Professionals

Compiled By : Association of Environmental and Occupational Health Delhi

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IAOH

World Cancer Day is a campaign built to resonate, inspire change and mobilise action long after the day has passed.

2019 marks the launch of the **3-year (2019-21) Theme 'I Am and I Will'** campaign.

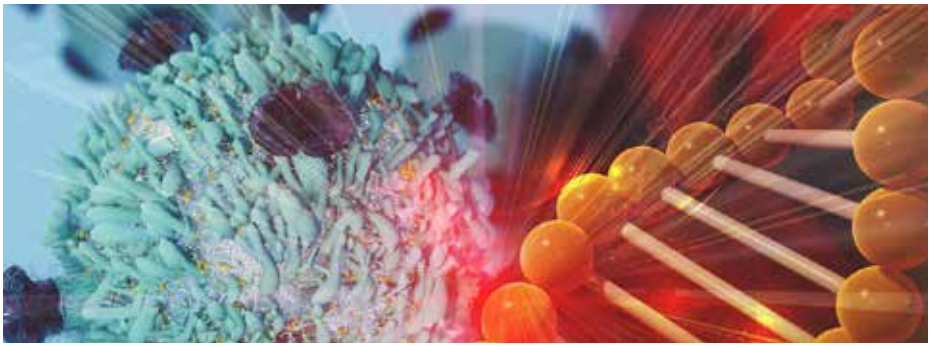
'I Am and I Will' is an empowering call-to-action urging for personal commitment and represents the power of individual action taken now to impact the future.

A multi-year campaign offers a chance to create long-lasting impact by increasing public-facing exposure and engagement, more opportunities to build global awareness and impact-driven action.

This **"Cancer Ready Recknor for Industrial Physicians & Occupational Health Professionals"** is compiled for increasing awareness about the known Occupational & Environmental Risk Factors for causing Cancer. These risk factors needs to be avoided or modified to prevent cancer.

Association of Environmental and Occupational Health Delhi (AEOHD) is committed to resonate, inspire change and mobilise action on the World Cancer Day campaign long after the day has passed.

Cancer



Cancer is a generic term for a large group of diseases that can affect any part of the body. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs, the latter process is referred to as metastasizing. Metastases are a major cause of death from cancer.

Cancer is a genetic disease – that is, it is caused by changes to genes that control the way our cells function, especially how they grow and divide.Genetic changes that cause cancer can be inherited from our parents. They can also arise during a person's lifetime as a result of errors that occur as cells divide or because of damage to DNA caused by certain environmental exposures, such as the chemicals in tobacco smoke, ultraviolet rays from the sun.

What Causes Cancer?

Cancer arises from the transformation of normal cells into tumour cells in a multistage process that generally progresses from a pre-cancerous lesion to a malignant tumour. These changes are the result of the interaction between a person's genetic factors and 3 categories of external agents, including:

Carcinogen : Any substance that causes cancer is known as a carcinogen. But simply because a substance has been designated as a carcinogen does not mean that the substance will necessarily cause cancer. Many factors influence whether a person exposed to a carcinogen will develop cancer, including the amount and duration of the exposure and the individual's genetic background. Cancers caused by involuntary exposures to environmental carcinogens are most likely to occur in subgroups of the population, such as workers in certain industries who may be exposed to carcinogens on the job.

- Physical carcinogens, such as ultraviolet and ionizing radiation;
- Chemical carcinogens, such as asbestos, components of tobacco smoke, aflatoxin (a food contaminant), and arsenic (a drinking water contaminant); and
- Biological carcinogens, such as infections from certain viruses, bacteria, or parasites

Cancer Scenario in India

Among various diseases, cancer has become a big threat to human beings globally. As per Indian population census data, the rate of mortality due to cancer in India was high and alarming with about 806000 existing cases by the end of the last century. Cancer is the second most common disease in India responsible for maximum mortality with about 0.3 million deaths per year. This is owing to the poor availability of prevention, diagnosis and treatment of the disease. All types of cancers have been reported in Indian population including the cancers of skin, lungs, breast, rectum, stomach, prostate, liver, cervix, esophagus, bladder, blood, mouth etc. The causes of such high incidence rates of these cancers may be both internal (genetic, mutations, hormonal, poor immune conditions) and external or environmental factors (food habits, industrialization, over growth of population, social etc.)

Key Facts About Cancer (WHO)

- Cancer is the second leading cause of death globally, and is responsible for an estimated 9.6 million deaths in 2018. Globally, about 1 in 6 deaths is due to cancer.
- Approximately 70% of deaths from cancer occur in low- and middle-income countries.
- Around one third of deaths from cancer are due to the 5 leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use.
- Tobacco use is the most important risk factor for cancer and is responsible for approximately 22% of cancer deaths (2).
- Cancer causing infections, such as hepatitis and human papilloma virus (HPV), are responsible for up to 25% of cancer cases in low- and middle-income countries (3).
- Late-stage presentation and inaccessible diagnosis and treatment are common. In 2017, only 26% of low-income countries reported having pathology services generally available in the public sector. More than 90% of high-income countries reported treatment services are available compared to less than 30% of low-income countries.
- The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US$ 1.16 trillion (4).
- Only 1 in 5 low - and middle-income countries have the necessary data to drive cancer policy (5).

The Problem

Cancer is a leading cause of death worldwide, accounting for an estimated 9.6 million deaths in 2018.

The most common cancers are:

- Lung (2.09 million cases)
- Breast (2.09 million cases)
- Colorectal (1.80 million cases)
- Prostate (1.28 million cases)
- Skin cancer (non-melanoma) (1.04 million cases)
- Stomach (1.03 million cases)

The most common causes of cancer death are cancers of:

- Lung (1.76 million deaths)
- Colorectal (862 000 deaths)
- Stomach (783 000 deaths)
- Liver (782 000 deaths)
- Breast (627 000 deaths)

Typical symptoms of cancer include:

- The presence of unusual lump in the body
- Changes in a mole on the skin, such as size, color or shape thickness
- A persistent cough or hoarseness
- A change in bowel habits, such as unusual diarrhea or constipation
- Difficulty in swallowing or continuing indigestion
- Any abnormal bleeding, including bleeding from the vagina, or blood in urine or faeces
- A persistent sore or ulcer
- Difficulty passing urine
- Unexplained weight loss
- Unexplained pain
- Unexplained tiredness or fatigue
- Skin changes such as an unexplained rash or unusual texture
- Unexplained night sweats
- Abdominal pain

Risk Factors for Cancer

It is usually not possible to know exactly why one person develops cancer and another doesn't. But research has shown that certain risk factors may increase a person's chances of developing cancer. Cancer risk factors include exposure to chemicals or other substances, as well as certain behaviors. They also include things people cannot control, like age and family history. The list below includes the most-studied known or suspected risk factors for cancer. Although some of these risk factors can be avoided, others – such as growing older – cannot. Limiting your exposure to avoidable risk factors may lower your risk of developing certain cancers.

Age:

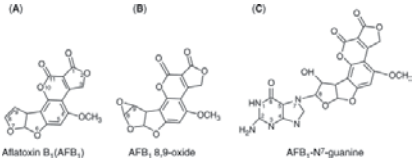
Advancing age is the most important risk factor for cancer overall, and for many individual cancer types worldwide. But cancer disease can occur at any age. For example, bone cancer is most frequently diagnosed among people under age 20, with more than one-fourth of cases occurring in this age group. And 10 percent of leukemias are diagnosed in children and adolescents under 20 years of age, whereas only 1 percent of cancer overall is diagnosed in that age group. Some types of cancer, such as neuroblastoma, are more common in children or adolescents than in adults.

Alcohol:

Drinking alcohol can increase your risk of cancer of the mouth, throat, esophagus, larynx (voice box), liver, and breast. The more you drink, the higher your risk. The risk of cancer is much higher for those who drink alcohol and also use tobacco. It is advisable for people who drink to do so in moderate amounts. It has been suggested that certain substances in red wine, such as resveratrol, have anticancer properties. However, there is no evidence that drinking red wine reduces the risk of cancer.

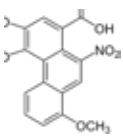
Cancer-Causing Substances

Aflatoxins:



People can be exposed to aflatoxins by eating contaminated plant products (such as peanuts) or by consuming meat or dairy products from animals that ate contaminated feed. Farmers and other agricultural workers may be exposed by inhaling dust generated during the handling and processing of contaminated crops and feeds. Exposure to aflatoxins is associated with an increased risk of liver cancer.

Aristolochic Acids:



Plants containing aristolochic acids are used in some herbal products intended to treat a variety of symptoms and diseases, such as arthritis, gout, and inflammation. Cancers of the upper urinary tract (renal pelvis and ureter) and bladder have been reported among individuals who had kidney damage caused by the consumption of herbal products containing aristolochic acids.

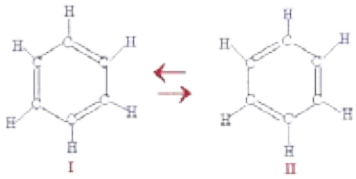
Arsenic:

People in the general population may be exposed to arsenic by smoking tobacco, being around tobacco smoke, drinking contaminated water, or eating food from plants that were irrigated with contaminated water. Prolonged ingestion of arsenic-containing drinking water is associated with an increased risk of bladder cancer and skin cancer, and medical exposure to arsenic has been clearly associated with skin cancer in epidemiological studies. In addition, cancers of the lung, digestive tract, liver, kidney, and lymphatic and hematopoietic systems have been linked to arsenic exposure.

Asbestos:

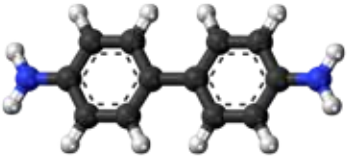
Asbestos has been used in commercial products such as insulation and fireproofing materials, automotive brakes, and wallboard materials. Exposure to asbestos is associated with an increased risk of lung cancer and mesothelioma

Benzene:



Benzene is found in cigarette smoke, glues, adhesives, cleaning products, and paint strippers. Outdoor air contains low levels of benzene from secondhand tobacco smoke, gasoline fumes, motor vehicle exhaust, and industrial emissions. Exposure to benzene may increase the risk of developing leukemia and other blood disorders.

Benzidine:



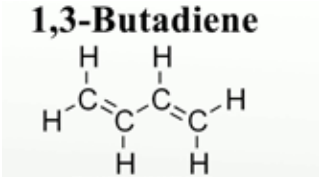
Inhalation and accidental ingestion are the main ways people can be exposed to benzidine-based dyes used in cloth, paper, and leather industries. Occupational exposure to benzidine results in an increased risk of bladder cancer

Beryllium:

The major route of human exposure is through airborne particles of beryllium metal, alloys, oxides, and ceramics. Beryllium particles are inhaled into the lungs and upper respiratory tract. Hand-to-mouth exposures and skin contact with ultrafine particles can also occur. An increased risk of lung cancer has been observed in workers exposed to beryllium or beryllium compounds.

1,3-Butadiene:

Sources of exposure include automobile exhaust; tobacco smoke; and polluted air and water near chemical, plastic, or rubber facilities. Studies have consistently shown an association between occupational exposure to 1,3-butadiene and an increased incidence of leukemia.



Cadmium:

Exposure to cadmium occurs mostly in workplaces where cadmium products are made. The major routes of occupational exposure are inhalation of dust and fumes and incidental ingestion of dust from contaminated hands, cigarettes, or food.

The general population is exposed to cadmium by breathing tobacco smoke or eating cadmium-contaminated foods, which is the major source of cadmium exposure for nonsmokers. The expanding nickel–cadmium (NiCd) battery recycling industry is also a potential source for exposure.

Occupational exposure to various cadmium compounds is associated with an increased risk of lung cancer.

Coal Tar and Coal-Tar Pitch:

The primary routes of human exposure to coal tars and coal-tar products are inhalation, ingestion, and absorption through the skin. Exposure to coal tars and coal-tar pitches may occur at foundries and during coke production, coal gasification, and aluminum production. Other workers who may be exposed to coal-tar pitches include those who produce or use pavement tar, roofing tar, coal-tar paints, coal-tar enamels, other coal-tar coatings, or refractory bricks.

The general population may be exposed to coal tars in environmental contaminants and through the use of coal tar preparations to treat skin disorders such as eczema, psoriasis, and dandruff.

Occupational exposure to coal tar or coal-tar pitch is associated with an increased risk of skin cancer. Other types of cancer, including lung, bladder, kidney, and digestive tract cancer, have also been linked to occupational exposure to coal tar and coal-tar pitch.

Coke-Oven Emissions:

Workers at coking plants and coal-tar production plants may be exposed to coke oven emissions. Occupational exposures can also occur among workers in the aluminum, steel, graphite, electrical, and construction industries. The primary routes of

potential human exposure to coke oven emissions are inhalation and absorption through the skin.

Exposure to coke oven emissions is associated with an increased risk of lung cancer.

Crystalline Silica (Respirable Size):

Exposure to tiny particles of airborne silica, primarily quartz dust, occurs mainly in industrial and occupational settings. For example, workers who use handheld masonry saws to cut materials such as concrete and brick may be exposed to airborne silica. When inhaled, these particles can penetrate deep into the lungs.

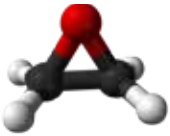
The primary route of exposure for the general population is inhaling airborne silica while using commercial products containing quartz. These products include cleansers, cosmetics, art clays and glazes, pet litter, talcum powder, caulk, and paint.

Exposure of workers to respirable crystalline silica is associated with elevated rates of lung cancer. The strongest link between human lung cancer and exposure to respirable crystalline silica has been seen in studies of quarry and granite workers and workers involved in ceramic, pottery, refractory brick, and certain earth industries.

Erionite:

Erionite-related disease has been reported most often among road construction and maintenance workers who may have been exposure to erionite-containing gravel used in road surfacing. Exposure to erionite is associated with increased risks of lung cancer and mesothelioma.

Ethylene Oxide:



Workers and people who live near industrial facilities that produce or use ethylene oxide may be exposed to ethylene oxide through uncontrolled industrial emissions. The general population may also be exposed through tobacco smoke and the use of products that have been sterilized with ethylene oxide, such as medical products, cosmetics, and beekeeping equipment.

Lymphoma and leukemia are the cancers most frequently reported to be associated with occupational exposure to ethylene oxide. Stomach and breast cancers may also be associated with ethylene oxide exposure.

Formaldehyde:

People are exposed primarily by inhaling formaldehyde gas or vapor from the air or by absorbing liquids containing formaldehyde through the skin. Workers who produce formaldehyde or products that contain formaldehyde – as well as laboratory technicians, certain health care professionals, and mortuary employees – may be exposed to higher levels of formaldehyde than the general public.

The general public may be exposed to formaldehyde by breathing contaminated air from sources such as pressed-wood products, tobacco smoke, and automobile tailpipe emissions. Another potential source of exposure to formaldehyde is the use of unvented fuel-burning appliances, such as gas stoves, wood-burning stoves, and kerosene heaters.

Studies of workers exposed to high levels of formaldehyde, such as industrial workers and embalmers, have found that formaldehyde causes myeloid leukemia and rare cancers, including cancers of the paranasal sinuses, nasal cavity, and nasopharynx.

Hexavalent Chromium Compounds:

Occupational exposure to hexavalent chromium can occur from inhalation of dusts, mists, or fumes containing hexavalent chromium, or from eye or skin contact. Industries with the largest number of workers exposed to high concentrations of airborne hexavalent chromium compounds include electroplating, welding, and chromate painting.

Occupational exposure to these compounds is associated with increased risks of lung cancer and cancer of the paranasal sinuses and nasal cavity.

Indoor Emissions from the Household Combustion of Coal:

People in some parts of the world, particularly in certain regions of China, have been exposed to indoor emissions from coal combustion through the use of unvented stoves and fire pits.
Lung cancer is associated with exposure to indoor coal combustion emissions.

Mineral Oils: Untreated and Mildly Treated:

Occupational exposure to mineral oils may occur among workers in various industries, including the manufacture of automobiles, airplanes, steel products, screws, pipes, and transformers. Workers in brass and aluminum production, engine repair, copper mining, and newspaper and commercial printing may also be exposed to mineral oils. The general population may be exposed to mineral oils that occur naturally or are present as environmental contaminants.

Exposure to mineral oils is strongly associated with an increased risk of nonmelanoma skin cancer, particularly of the scrotum.

Nickel Compounds:

Occupational exposure is common in workplaces where nickel and nickel compounds are produced or used, including mining, smelting, welding, casting, and grinding. Occupational exposure to nickel occurs mainly through inhalation of dust particles and fumes or through skin contact.

The general population is exposed to low levels of nickel in air, water, food, and tobacco smoke. Nickel and its compounds get into the atmosphere through natural processes, such as the spread of dust and volcanic eruptions by the wind, as well as through industrial activities. The general public may also be exposed through nickel-plated materials, such as coins, jewelry, and stainless steel cooking and eating utensils.

Exposure to various nickel compounds is associated with increased risks of lung cancerand nasal cancer.

Radon:

Workers employed in uranium, hard rock, and phosphate mining potentially are exposed to radon at high concentrations. Uranium miners generally are believed to have the highest exposures.

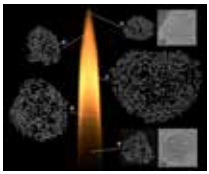
Radon was identified as a health problem when scientists noted that underground uranium miners who were exposed to it died of lung cancer at high rates. Experimental studies in animals confirmed the results of the miner studies by showing higher rates of lung tumors among rodents exposed to high levels of radon.

There has been a suggestion of an increased risk of leukemia associated with radon exposure in adults and children; the evidence, however, is not conclusive.

Secondhand Tobacco Smoke (Environmental Tobacco Smoke):

People can be exposed to secondhand smoke in homes, cars, the workplace, and public places. Inhaling secondhand smoke causes lung cancer in nonsmokers. Some research also suggests that secondhand smoke may increase the risk of some other cancers as well, though more research is needed on this subject.

Soot:



People may be exposed to soot by inhalation, ingestion, or absorption through the skin. Chimney sweeps likely have the highest occupational exposure to soot. Heating-unit service personnel, brick masons, building demolition personnel, horticulturists, and anyone who works where organic materials are burned may also be exposed through their work. The general public may be exposed through fireplaces, furnaces, engine exhaust, and particulate emissions from any combustion source.

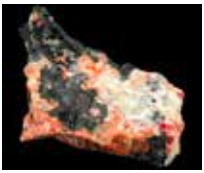
Exposure to soot was first associated with skin cancer of the scrotum among British chimney sweeps in 1775. Since then, many studies have found that chimney sweeps have an increased risk of scrotal and other skin cancers. Studies of chimney sweeps in several European countries have also found associations with other cancers, including lung, esophageal, and bladder cancers.

Strong Inorganic Acid Mists Containing Sulfuric Acid:

The major routes of occupational exposure are inhalation, ingestion, or absorption through the skin. Workers with potential exposure include those involved in manufacturing phosphate fertilizer, isopropanol, sulfuric acid, nitric acid, and lead batteries. Exposure may also occur during copper smelting, pickling (removing scale and oxides from metal surfaces), and other acid treatment of metals.

Occupational exposure to strong inorganic acid mists containing sulfuric acid is associated with increased risks of laryngeal and lung cancer.

Thorium:

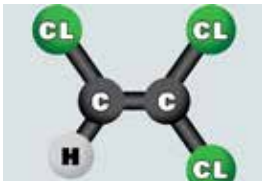


The primary ways people are exposed to thorium are inhalation, intravenous injection, ingestion, and absorption through the skin. Once injected, Thorotrast remains in the body, resulting in lifelong exposure to thorium.

Although thorium is widespread in the environment, most people are not exposed to dangerous levels of the metal. However, people who live near thorium-mining areas or facilities that manufacture products with thorium may have increased exposure, especially if their water comes from a private well. Analytical laboratories can test water for thorium content.

Studies of patients who received intravascular injections of Thorotrast found an increased risk of liver tumors among these individuals. And there is research evidence that inhaling thorium dust increases the risk of lung and pancreatic cancer. Individuals exposed to thorium also have an increased risk of bone cancer because thorium may be stored in bone.

Trichloroethylene:



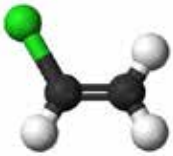
TCE may be found in the air, water, and soil at places where it is produced or used. It breaks down slowly and remains in the environment for a long time. It readily passes through soil and can accumulate in groundwater.

People in the general population can be exposed to trichloroethylene by inhaling it in indoor and outdoor air, drinking contaminated water, or eating foods that have been washed or processed with contaminated water.

People who work with TCE may inhale the chemical from the air and absorb it through the skin.

Prolonged or repeated exposure of trichloroethylene causes kidney cancer. Some evidence suggests that it may be associated with an increased risks of non-Hodgkin lymphoma and, possibly, liver cancer.

Vinyl Chloride:



Workers at facilities where vinyl chloride is produced or used may be exposed primarily through inhalation. The general population may be exposed by inhaling contaminated air or tobacco smoke. In the environment, the highest levels of vinyl chloride are found in air around factories that produce vinyl products. If a water supply is contaminated, vinyl chloride can enter household air when the water is used for showering, cooking, or laundry.

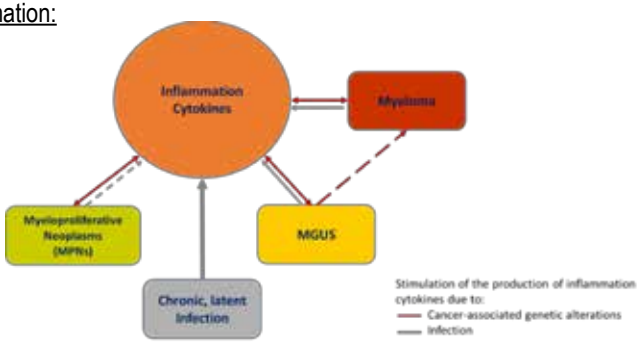
Vinyl chloride exposure is associated with an increased risk of a rare form of liver cancer (hepatic angiosarcoma), as well as brain and lung cancers, lymphoma, and leukemia.

Wood Dust:

Individuals who use machinery or tools to cut or shape wood are exposed to wood dust. When the dust is inhaled, it is deposited in the nose, throat, and other airways. Occupations with high exposure to wood dust include sander operators in the transportation equipment industry, press operators in the wood products industry, lathe operators in the furniture industry, and sander operators in the wood cabinet industry.

Strong and consistent associations with cancers of the paranasal sinuses and nasal cavity have been observed both in studies of people whose occupations were associated with wood-dust exposure and in studies that directly estimated wood-dust exposure.

Chronic Inflammation:



People with chronic inflammatory bowel diseases, such as ulcerative colitis and Crohn disease, have an increased risk of colon cancer.

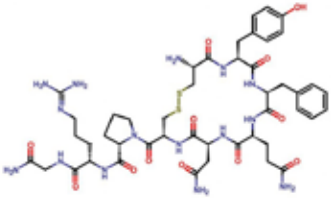
Diet:

Diet can also directly affect cancer risk. Some foods, such as processed and red meat and salt-preserved foods, can increase the risk of developing cancer. While others, such as fruits, vegetables and foods high in fibre, can reduce the risk of cancer.

Hormones:

Studies have also shown that a woman's risk of breast cancer is related to the estrogen and progesterone made by her ovaries (known as endogenous estrogen and progesterone). Being exposed for a long time and/or to high levels of these hormones has been linked to an increased risk of breast cancer. Increases in exposure can be caused by starting menstruation early, going through menopause late, being older at first pregnancy, and never having given birth. Conversely, having given birth is a protective factor for breast cancer.

Immunosuppression:



People with HIV/AIDS also have increased risks of cancers that are caused by infectious agents, including EBV; human herpesvirus 8, or Kaposi sarcoma-associated virus; HBV and HCV, which cause liver cancer; and human papillomavirus, which causes cervical, anal, oropharyngeal, and other cancers. HIV infection is also associated with increased risks of cancers that are not thought to be caused by infectious agents, such as lung cancer.

Infectious Agents:

Certain infectious agents, including viruses, bacteria, and parasites, can cause cancer or increase the risk that cancer will form. Some viruses can disrupt signaling that normally keeps cell growth and proliferation in check. Also, some infections weaken the immune system, making the body less able to fight off other cancer-causing infections. And some viruses, bacteria, and parasites also cause chronic inflammation, which may lead to cancer.

Most of the viruses that are linked to an increased risk of cancer can be passed from one person to another through blood and/or other body fluids. You can lower your risk of infection by getting vaccinated, not having unprotected sex, and not sharing needles.

Obesity:

People who are obese may have an increased risk of several types of cancer, including cancers of the breast (in women who have been through menopause), colon, rectum, endometrium (lining of the uterus), esophagus, kidney, pancreas, and gallbladder.

Conversely, eating a healthy diet, being physically active, and keeping a healthy weight may help reduce risk of some cancers. These healthy behaviors are also important to lessen the risk of other illnesses, such as heart disease, type II diabetes, and high blood pressure.

Radiation:

Radiation of certain wavelengths, called ionizing radiation, has enough energy to damage DNA and cause cancer. Ionizing radiation includes radon, x-rays, gamma rays, and other forms of high-energy radiation. Lower-energy, non-ionizing forms of radiation, such as visible light and the energy from cell phones and electromagnetic fields, do not damage DNA and have not been found to cause cancer.

Sunlight:

The sun, sunlamps, and tanning booths all give off ultraviolet (UV) radiation. Exposure to UV radiation causes early aging of the skin and skin damage that can lead to skin cancer.

Tobacco:

Tobacco use is a leading cause of cancer and of death from cancer. People who use tobacco products or who are regularly around environmental tobacco smoke (also called secondhand smoke) have an increased risk of cancer because tobacco products and secondhand smoke have many chemicals that damage DNA.

Tobacco use causes many types of cancer, including cancer of the lung, larynx (voice box), mouth, esophagus, throat, bladder, kidney, liver, stomach, pancreas, colon and rectum, and cervix, as well as acute myeloid leukemia. People who use smokeless tobacco (snuff or chewing tobacco) have increased risks of cancers of the mouth, esophagus, and pancreas.

Risk Factors for Esophageal Carcinoma

1. Tobacco
2. Alcohol
3. Dictary factors
4. Occupational factors
    - Perchloroethylene (Dry cleaners, Metal polishers)
    - Combustion products
    - Fossil fuels (Chimney sweeps, Printers, Gas station attendant, Aspirants & Metal workers)
    - Sillica & Metal dust
    - Asbestos
5. High BMI
6. History of GERD
7. H. Pylori Infection
8. Caustic Injury
9. Achalasia
10. Disturbed Cardinal Rhythm/Night Shifts
11. Stress

Risk Factors for Carcinoma Oral Cavity

1. Tobacco Smoking Smokeless
2. Alcohol
3. Poor oral Hygiene
4. Occupational Exposure
    - Wood Dust
    - Organic chemicals
    - Coal Products
5. Infections
    - HPV
    - HJV
    - HSV
    - EBV
6. Malnutrition
7. Family History

Risk Factors for Carcinoma Breast

1. Family history
2. Inherited predisposition
3. Dietary factors (Ted BMI)
4. Benign breast disease
5. Environmental factors
    - Radiation exposure
6. Stress work, Lack of sleep
    - Disturbed cardinal rhythm
7. Living in Metropolitan City ≥ 5 years
8. Alcohol intake
9. Nulliparity
10. Lack of breast feeding

Risk Factors for Carcinoma Lung

1. Smoking (Active /Passive) – No of Pack years
2. Occupational exposure (Asbestos, Radon, Cadmium, Beryllium, Arsenic, Chromium, Micket, Radon, Vinyl Chloride)
3. Living in Metropolitan city ≥ 5 years
4. History of COPD
5. Genetic predisposition
6. Age

Risk Factors for Cacinoma Stomach

1. Tobacco
2. Alcohol
3. Dietary factors
    - High salt/nitrate
    - Poor preparation
4. Occupational
    - Rubber workers
    - Coal workers
5. H. Pylori
6. Famliy history / Genetic factors
7. Blood group A
8. Obesity
9. Prior gastric surgery
10. Disturbed cardinal Rhythm / Night Shifts
11. Stress.

How to Reduce the Cancer Burden

Between 30-50% of cancers can currently be prevented by avoiding risk factors and implementing existing evidence-based prevention strategies. The cancer burden can also be reduced through early detection of cancer and management of patients who develop cancer. Many cancers have a high chance of cure if diagnosed early and treated adequately.

Modify and Avoid Risk Factors:

Modifying or avoiding key risk factors can significantly reduce the burden of cancer. These risk factors include:

- Tobacco use including cigarettes and smokeless tobacco
- Being overweight or obese
- Unhealthy diet with low fruit and vegetable intake
- Lack of physical activity
- Alcohol use
- Sexually transmitted HPV-infection
- Infection by hepatitis or other carcinogenic infections
- Ionizing and ultraviolet radiation
- Urban air pollution
- Indoor smoke from household use of solid fuels.

Tobacco use is the single most important risk factor for cancer and is responsible for approximately 22% of cancer-related deaths globally.

Pursue Prevention Strategies

To prevent cancer, people may:

- Increase avoidance of the risk factors listed above;
- Vaccinate against HPV and hepatitis B virus;
- Control occupational hazards;
- Reduce exposure to ultraviolet radiation;
- Reduce exposure to ionizing radiation (occupational or medical diagnostic imaging).

Vaccination against these HPV and hepatitis B viruses could prevent 1 million cancer cases each year.

Early Detection

Cancer mortality can be reduced if cases are detected and treated early. There are 2 components of early detection:

1. Early Diagnosis

When identified early, cancer is more likely to respond to effective treatment and can result in a greater probability of surviving, less morbidity, and less expensive treatment. Significant improvements can be made in the lives of cancer patients by detecting cancer early and avoiding delays in care.

Early diagnosis consists of 3 steps that must be integrated and provided in a timely manner:

- Awareness and accessing care
- Clinical evaluation, diagnosis and staging
- Access to treatment.

Early diagnosis is relevant in all settings and the majority of cancers. In absence of early diagnosis, patients are diagnosed at late stages when curative treatment may no longer be an option. Programmes can be designed to reduce delays in, and barriers to, care, allowing patients to access treatment in a timely manner.

2. Screening

Screening aims to identify individuals with abnormalities suggestive of a specific cancer or pre-cancer who have not developed any symptoms and refer them promptly for diagnosis and treatment.

Screening programmes can be effective for select cancer types when appropriate tests are used, implemented effectively, linked to other steps in the screening process and when quality is assured. In general, a screening programme is a far more complex public health intervention compared to early diagnosis.

Examples of screening methods are:

- Visual inspection with acetic acid (VIA) for cervical cancer in low-income settings;
- HPV testing for cervical cancer;
- PAP cytology test for cervical cancer in middle- and high-income settings; and
- Mammography screening for breast cancer in settings with strong or relatively strong health systems.

Treatment

A correct cancer diagnosis is essential for adequate and effective treatment because every cancer type requires a specific treatment regimen that encompasses one or more modalities such as surgery, radiotherapy, and chemotherapy. Determining the goals of treatment and palliative care is an important first step, and health services should be integrated and people-centred. The primary goal is generally to cure cancer or to considerably prolong life. Improving the patient's quality of life is also an important goal. This can be achieved by supportive or palliative care and psychosocial support.

Potential for cure among early detectable cancers

Some of the most common cancer types, such as breast cancer, cervical cancer, oral cancer, and colorectal cancer have high cure rates when detected early and treated according to best practices.

Potential for cure of some other cancers

Some cancer types, even when cancerous cells have traveled to other areas of the body, such as testicular seminoma and leukaemias and lymphomas in children, can have high cure rates if appropriate treatment is provided.

Palliative care

Palliative care is treatment to relieve, rather than cure, symptoms caused by cancer and improve the quality of life of patients and their families. Palliative care can help people live more comfortably. It is an urgent humanitarian need for people worldwide with cancer and other chronic fatal diseases and particularly needed in places with a high proportion of patients in advanced stages of cancer where there is little chance of cure.

Relief from physical, psychosocial, and spiritual problems can be achieved in over 90% of advanced cancer patients through palliative care.

Palliative care strategies

Effective public health strategies, comprising of community- and home-based care are essential to provide pain relief and palliative care for patients and their families in low-resource settings.

Improved access to oral morphine is mandatory for the treatment of moderate to severe cancer pain, suffered by over 80% of cancer patients in terminal phase.

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