



## PRIMARY PREVENTION OF CANCER

Primary prevention of cancer is the prevention of cancer in an individual who does not have the disease. The primary preventive methods against specific cancer sites are enumerated below:

PRIMARY PREVENTION	CANCER SITE
Clean sex; Acetic acid wash/Pap smear for pre-cancerous CIN lesions	Cervix cancer
Hepatitis B vaccination	Liver cancer
No smoking	Cancer of the mouth, lung, oral cavity, esophagus, urinary bladder, pancreas, cervix
No mould food (aflatoxin). No pesticide in food.	Liver cancer
No nitrate/ nitrosamine, excessive salt preservative	Stomach cancer
High dietary fruits & vegetables	Cancer of the colon, rectum, stomach, esophagus
High Vitamin A, C, E	Cancer of the breast, stomach, oropharynx
No animal fat in diet	Cancer of the breast, stomach, oropharynx
No vinyl chloride in workplace	Liver cancer
No asbestos in workplace	Lung cancer

Cancer causation describes phenomena that result in increased risk for cancer. It involves environmental or lifestyle risk factors for cancer. The presence of such risk factors in a person, increases the person's probability of developing the disease. The following are the more common risk factors associated with cancer development.

RISK FACTOR	CANCER SITE
Cigarette smoking	Lung
Hepatitis b virus (HBV) infection	Liver
Human Papilloma virus (HPV) infection; multiple sexual partners	Cervix

Not all cancer risk factors are equal. The most important risk is tobacco. Smoking has been identified as a definite cause of cancer at many sites. Organs in direct contact with smoke (oral cavity, esophagus, lung and bronchus) have 90% risk for cancer development. Organs and tissues distant from smoke (cervix, pancreas, bladder, kidney and stomach) also are at increased risk for cancer - 50% to 200% increase over that of nonsmokers. Carcinogens in cigarette smoke influence carcinogenesis at both early and late stages and interact synergistically with other risk factors, such as alcohol, asbestos, radiation, etc. In cigarettes (tar and nicotine altogether), there are 4,000 compounds, 43 carcinogens, irritating gases, tumor initiators, tumor promoters, and metallic traces of As, Cr, Cd, Co, NiCo, Pb, and Se. The organ-specific carcinogens from cigarette smoke have been identified:

- Lung & bronchi – benz(a)pyrene, benzanthracene, polyaromatic hydrocarbons
- Bladder – nitrosamines, aromatic nitro-compounds, b-naphthylamine, d1-n butyl nitrosamine
- Esophagus – nitrosornicotine, d1 nitrosopiperazine (tobacco chewers), and
- Pancreas – dialkyl nitrosamine, pyrene, flouranthene, isopropanol nitrosamine

Some chemicals found in cigarette smoke are carbon monoxide, carbon dioxide, acetone, ammonia, arsenic, cyanide, DDT, formaldehyde, ethane, ethanol, methane, methanol, sulfur dioxide, vinyl chloride among others.

Some risk factors, when combined, greatly increase risk – smoking and heavy alcohol drinking, for instance. Indeed, cancer disease causation is characteristically multi-factorial. The multi-factorial causation can be enumerated as the 5/ing – self (genetic), smoke, stress, sex, sun, salt (preservatives/ chemicals), virus.

However, one cannot control all risk factors like family health history or one's heredity. Taking control of one's lifestyle is the key to helping one feel better and reducing one's cancer risk.

The Philippine Cancer Society Inc further has specific primary prevention of guidelines for cancers of the lung, uterine cervix, liver, oral cavity, testis and skin:

## Lung Cancer

No smoking is the primary message.

Counsel against tobacco use among children or adolescents, and adults.

Screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products. Brief smoking cessation interventions, including screening, brief behavioral counseling (less than 3 minutes), and pharmacotherapy delivered in primary care settings, are effective in increasing the proportion of smokers who successfully quit smoking and remain abstinent after 1 year. Smoking cessation lowers the risk for heart disease, stroke, and lung disease.

Screen all pregnant women for tobacco use and provide augmented pregnancy-tailored counseling to those who smoke. Extended or augmented smoking cessation counseling (5-15 minutes) using messages and self-help materials tailored for pregnant smokers, compared with brief generic counseling interventions alone, substantially increases abstinence rates during pregnancy, and leads to increased birth weights. Reducing smoking during pregnancy is likely to have substantial health benefits for both the baby and the expectant mother.

## Uterine Cervix Cancer

Screen for pre-cancerous lesions of the cervix (cervical intraepithelial neoplasia or CIN I-III) in women who have been sexually active and have a cervix. Begin screening within 3 years of onset of sexual activity or age 21 (whichever comes first) and screening at least every 3 years. Stop routine screening of women older than age 65 if they have had adequate recent screening with normal Pap smears and are not otherwise at high risk for cervical cancer. Counseling is done to promote safe sex.

- **For low resourced Regions**

Use Acetic acid to detect cervix lesions, which when positive can be immediately referred to a gynecology unit for Pap smear or a colposcopy facility for biopsy

- **For adequately resourced Regions**

Use Acetic acid to detect cervix lesions, which when positive can be immediately referred to a gynecology unit for Pap smear or a colposcopy facility for biopsy

Or do cytology (Pap smears) directly.

## Liver Cancer

Hepatitis B is a liver disease caused by the hepatitis B virus (HBV). It ranges in severity from a mild illness, lasting a few weeks (acute), to a serious long-term (chronic) illness that can lead to liver disease or liver cancer. Transmission is via contact with infectious blood, semen, and other body fluids from having sex with an infected person, sharing contaminated needles to inject drugs, or from an infected mother to her newborn.

Hepatitis B vaccination is recommended for all infants, older children and adolescents who were not vaccinated previously, and adults at risk for HBV infection.

All children 0-18 years of age should receive the hepatitis B vaccine series. The vaccination schedule most often used for adults and children has been three intramuscular injections, the second and third administered 1 and 6 months after the first. The third dose needs to be administered not earlier than 6 months from the first dose.

- **At birth** (Minimum age: birth)
  - Administer monovalent HepB vaccine to all newborns prior to hospital discharge.
    - If mother is hepatitis B surface antigen (HBsAg) positive, administer HepB vaccine and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
    - If mother's HBsAg status is unknown, administer HepB vaccine within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg positive, administer HBIG (no later than age 1 week).
  - **After the birth dose:**
    - The HepB series should be completed with either monovalent HepB vaccine or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered no earlier than age 24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of at least 3 doses of a licensed HepB vaccine series, at age 9–18 months (generally at the next well-child visit).
  - **4-month dose:**
    - It is permissible to administer 4 doses of HepB vaccine when combination vaccines are administered after the birth dose. If monovalent HepB vaccine is used for doses after the birth dose, a dose at age 4 months is not needed.
- For 7-18 yrs old, or those who start late (4 months-17 years of age) or those more than 1 month behind

- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB<sup>®</sup> is licensed for children aged 11–15 years.

## Oral Cancer

Visual inspection of the mouth and oral cavity during medical and or dental visits, particularly for precancerous lesions on an annual basis.

Oral-cavity self-examination using a mirror, particularly for precancerous lesions on a monthly basis.

## Testis Cancer

Asymptomatic adolescent and adult males must at earliest time do testicular self-examination, and ascertain that both testis are inside their scrotal sacs. If not, then patient should be counseled on possible outcomes of the un-descended testis, and the benefits and risk of removing it.

## Skin Cancer

Use of sunscreen, protective clothing. Reduce excessive sun exposure. Avoiding sun lamps/tanning beds. Do regular skin self-examination, and consult your doctor as soon as suspicious skin lesions occur.

## Further Information

For further information go to <http://www.who.int/cancer/detection/variouscancer/en/index.html> and or <http://www.ahrq.gov/clinic/uspstf/uspsasco.html> and or <http://www.cancer.gov/cancertopics/types/> and or <http://www.cdc.gov/vaccines/vpd-vac/hepb/default.htm>