



CANCER

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CANCER

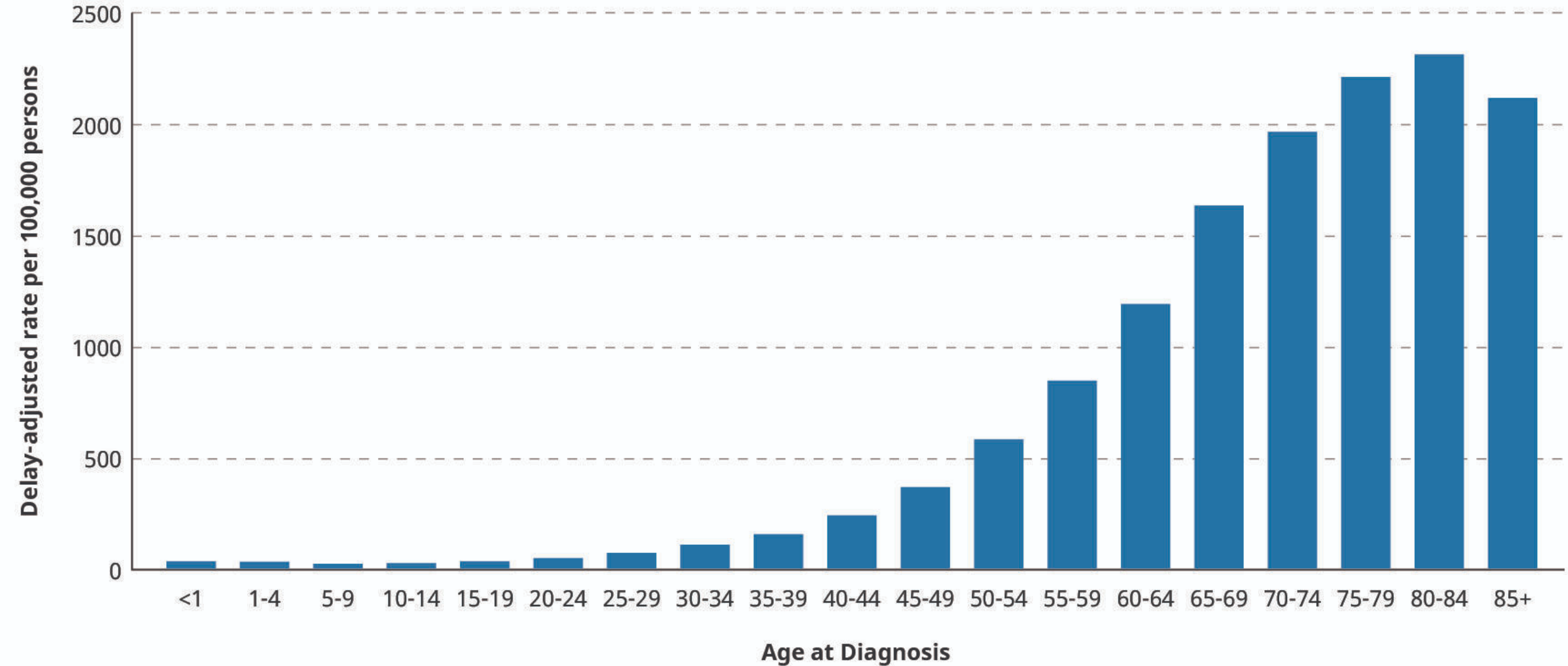
- A uncontrolled abnormal growth in cells
- A group of more than 100 distinct disease grouped together.
- Not always curable/fatal
- There are many ways to treat it.



AGE

- As you age you could have a risk of getting cancer.
- However there are some young people who get cancer as well
- It sometimes depends on genetics.
- Some babies have cancer when they are born but it is only a small chance.
- It is called neuroblastoma

Cancer cases 2013-2017

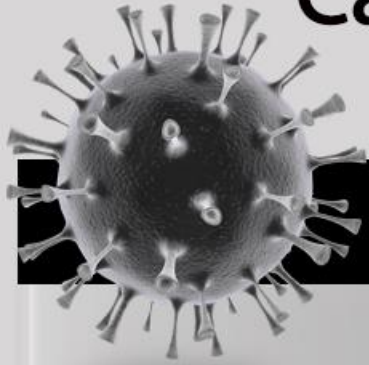




CANCER CELLS

- Normal cells become cancer cells due to mutations
- Continue to divide and grow out of control
- The body sometimes don't realize they are cancerous.
- All cancer cell types act a different way
- There are three stages
hyperplasia, dysplasia and cancer.

Cancer Cell & Normal Cell Characteristics



Cancer Cell

Shape: Irregular

Nucleus: Larger, darker

Growth: Out of control

Maturation: Immature - Doesn't mature

Communication: Doesn't communicate

Visibility: Invisible to immune cells

Blood Supply: Tumor angiogenesis

Oxygen: Doesn't like or require oxygen

Glucose: Loves, craves glucose

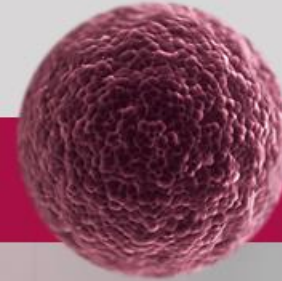
Energy Efficiency: Very low (5%)

Amount of ATP: 2 units of ATP

Cell Environment: Acidic

Nutrient Preference: Glucose

Normal Cell



Shape: Regular

Nucleus: Proportionate size

Growth: In control, systematic

Death: Mortal (Apoptosis)

Maturation: Mature (Cell differentiation)

Communication: Communicates

Visibility: Visible to immune cells, with ID

Blood Supply: Angiogenesis during repair

Oxygen: Requires oxygen

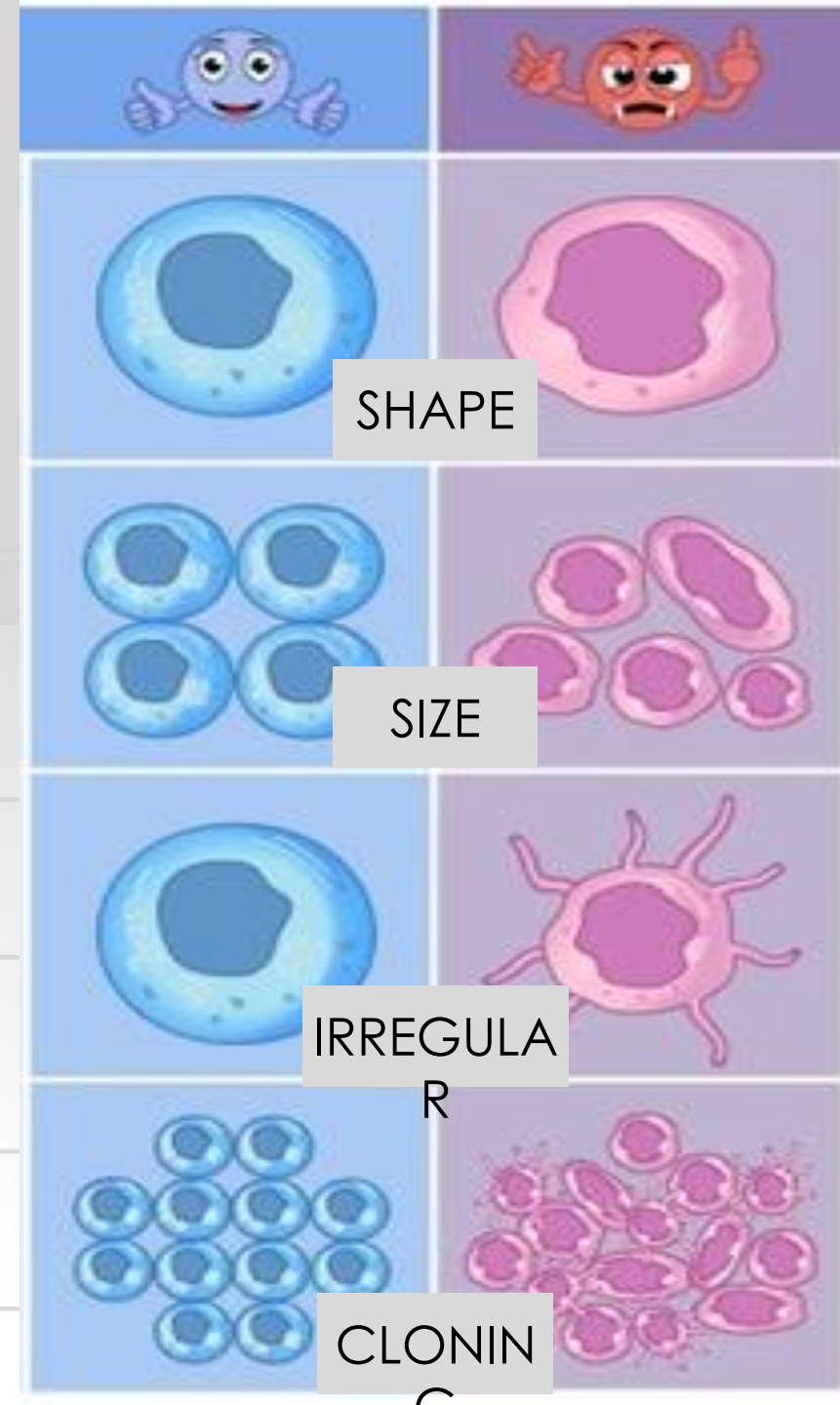
Glucose: Requires some glucose

Energy Efficiency: Very high (95%)

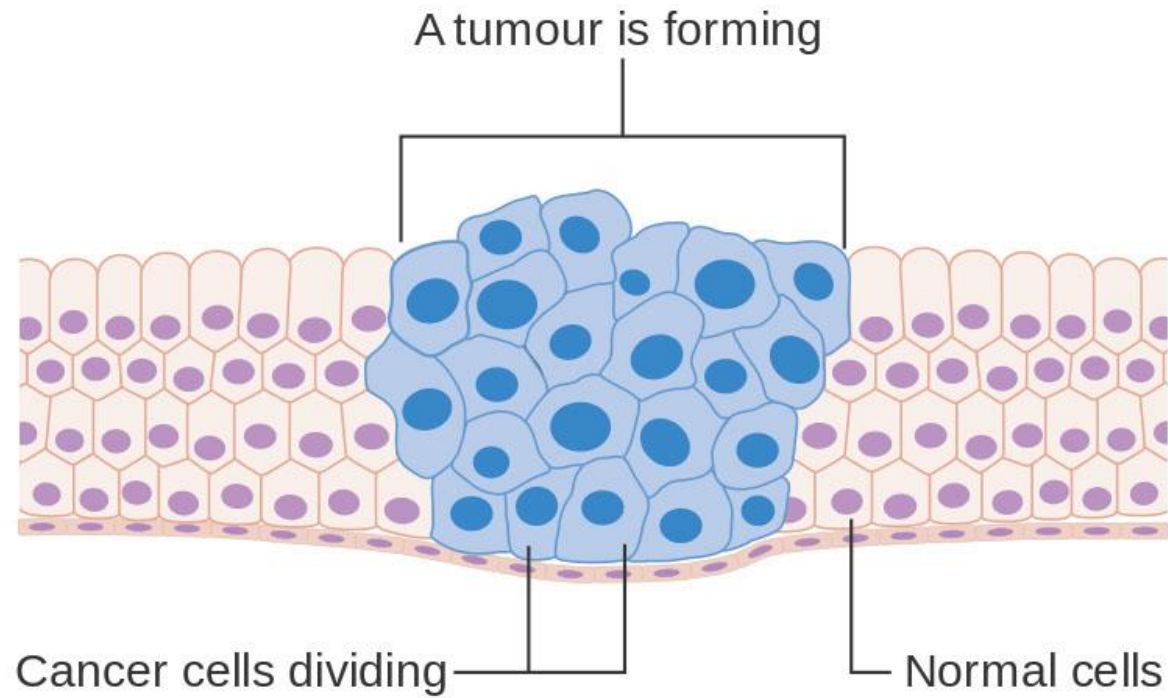
Amount of ATP: 38 units of ATP

Cell Environment: Alkaline

Nutrient Preference: Fat, Ketone, Glucose



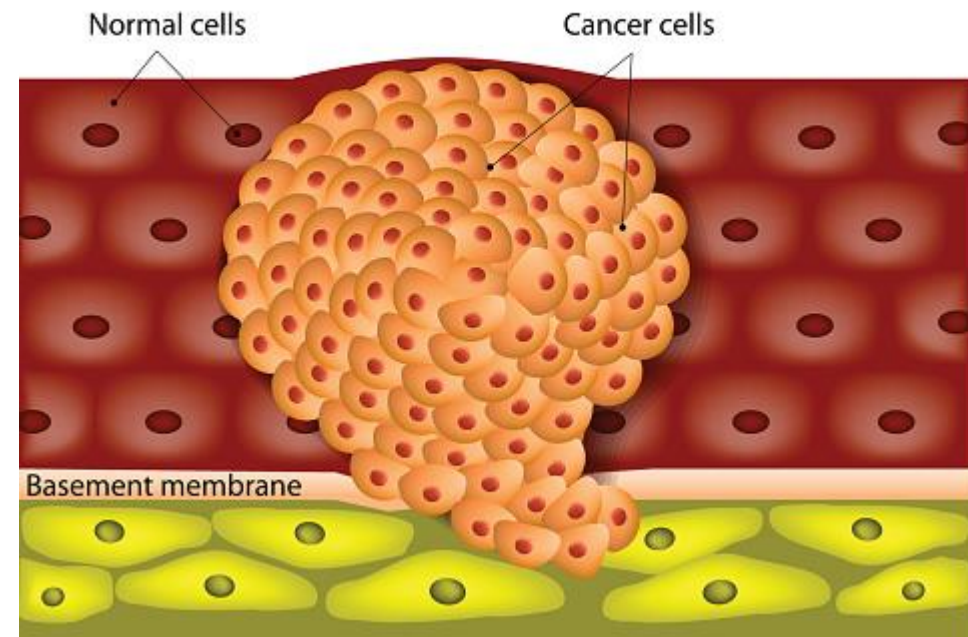
THIS RESULTS TO A TUMOR TO FORM



TUMORS OR NEOPLASMS

- Neo is new
- Plasm is formation
- Only some types are harmful
- Two types of tumors

GROWING MALIGNANT TUMOR





BENIGN TUMORS

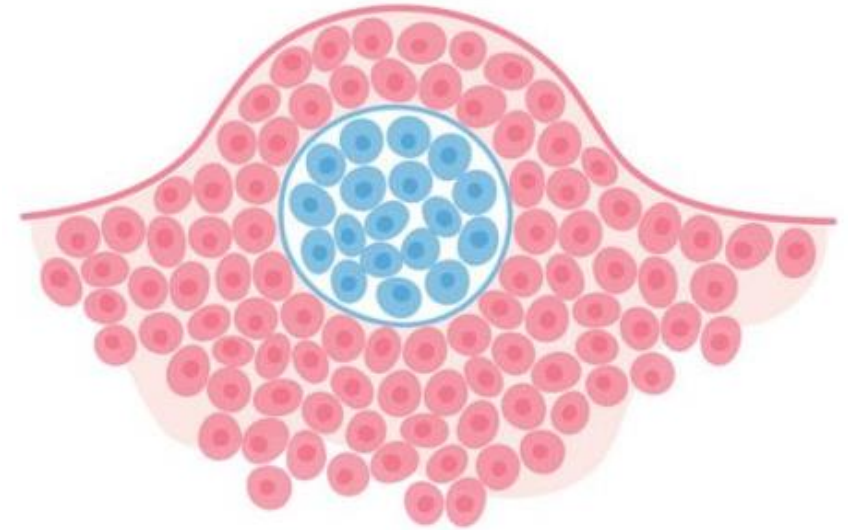
- Does not threaten health.
- No cancer
- Doesn't grow back
- Many ways to grow such as genetics, diet, stress and etc.
- However the cause is often unknown

MALIGNANT TUMORS

- The most dangerous are ones that attack the body tissue.
- They gain access to circulatory and lymphatic systems
- They grow and spread aggressively.
- This happens when normal cells lose the ability to control mitosis.
- When a part of the tumor moves to another place and creates a new one
- It is called Metastasis.

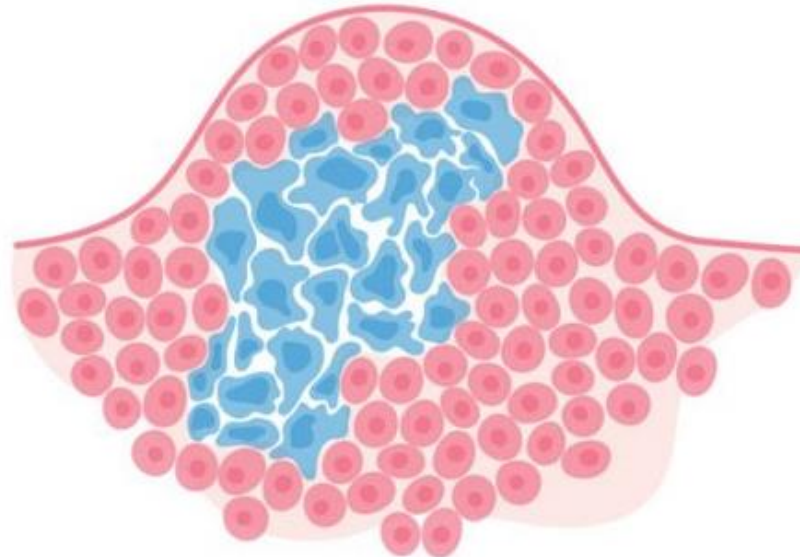
Benign tumor

- Non-cancerous
- Capsulated
- Non-invasive
- Slow growing
- Do not metastasize (spread) to other parts of the body
- Cells are normal



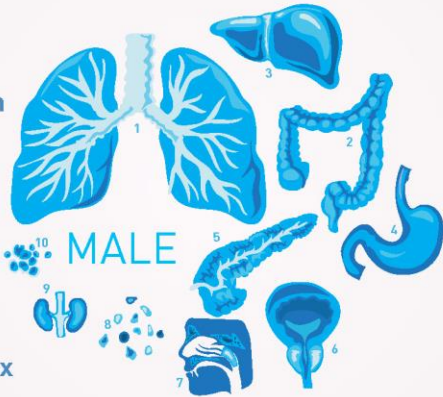
Malignant tumor

- Cancerous
- Non-capsulated
- Fast growing
- Metastasize (spread) to other parts of the body
- Cells have large, dark nuclei; may have abnormal shape



1^{TOP} CAUSE OF DEATH BY CANCER¹

- 1 Lung
- 2 Colo-rectum
- 3 Liver
- 4 Stomach
- 5 Pancreas
- 6 Prostate
- 7 Nasopharynx
- 8 Lymphomas
- 9 Kidney & Other Urinary
- 10 Leukaemias

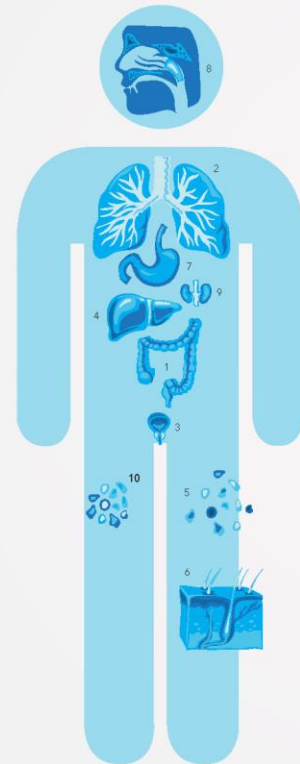


- 1 Breast
- 2 Lung
- 3 Colo-rectum
- 4 Liver
- 5 Stomach
- 6 Pancreas
- 7 Ovary, etc.
- 8 Cervix uteri
- 9 Lymphomas
- 10 Leukaemias

TOP 10 CANCERS DIAGNOSED IN SINGAPORE¹

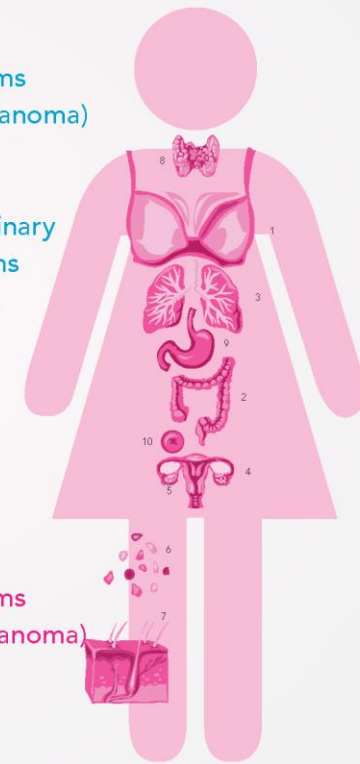
MALE NO.1 COLO-RECTUM

2. Lung
3. Prostate
4. Liver
5. Lymphoid neoplasms
6. Skin (Including melanoma)
7. Stomach
8. Nasopharynx
9. Kidney & Other Urinary
10. Myeloid neoplasms



FEMALE NO.1 BREAST

2. Colo-rectum
3. Lung
4. Corpus uteri
5. Ovary, etc
6. Lymphoid neoplasms
7. Skin (including melanoma)
8. Thyroid
9. Stomach
10. Cervix uteri



¹Other urinary refers to renal pelvis, ureter, urethra etc.

¹ Singapore Cancer Registry, Interim Annual Registry Report Trends in Cancer Incidence in Singapore 2010 - 2014



THE AMERICAN CANCER SOCIETY'S REMINDER

- **C**: Change in bowel or bladder habits
- **A**: A sore that does not heal
- **U**: Unusual bleeding or discharge
- **T**: Thickening or lump in the breast or elsewhere
- **I**: Indigestion or difficulty in swallowing
- **O**: Obvious change in a wart or mole
- **N**: Nagging cough or hoarseness

HOW TO PREVENT CANCER

1. Avoid Tobacco and smoke around you
2. Eat Healthy (Less saturated fats and red meats)
(Reduces prostate and colon cancer)
3. Exercise
(Reduces breast, reproductive and colon cancer)
4. Stay lean **(Reduces most types of cancer)**
5. Avoid Alcohol
(Reduces mouth, liver, colon and breast cancer)

HOW TO PREVENT CANCER

6. Avoid radiation

(lung cancer, skin cancer (ultraviolet rays))

7. Avoid industrial and environmental toxins

(the cancer is dependent on the toxin) (asbestos fibers, benzene, aromatic amines, polychlorinated biphenyls and etc.)

8. Avoid infections that relate to cancer

(Mostly transmitted sexually and contaminated needles)

9. Get sleep

(no sleep=more weight=high chance of cancer in general)

10. Vitamin D

(Reduces prostate cancer, colon cancer, and etc.)

(800 to 1000 IU(international unit) a day)

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