

ملاحظة: هاد مو ملخص، ولكن اشي بخلي الحياة أسهل (:

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Non-Communicable Diseases

Noncommunicable - or chronic - diseases (NCDs) are diseases of long duration and generally slow progression.

These conditions do not result from an (acute) infectious process & hence are "not communicable"; have a prolonged course, do not resolve spontaneously, and for which a complete cure is rarely achieved.

NCDs are the result of a combination of genetic, physiological, environmental & behavioural factors.

These invisible diseases are an under-appreciated cause of poverty & hinder توقف the economic development of many countries. The burden is growing & the No. of people, families & communities afflicted is increasing.

NCDs are the leading cause of mortality in the world.

NCDs disproportionately affect people in **low- and middle-income countries** where more than three quarters of global NCD deaths (31.4 million) occur.

NCDs are **driven by forces** that include:

- 1) rapid **unplanned urbanization**,
- 2) globalization of **unhealthy lifestyles**
- 3) population **ageing**.

- metabolic risk factors that can lead to cardiovascular disease, the leading NCD in terms of premature deaths:

Unhealthy diets & a lack of physical activity may show up in people as raised blood pressure, increased blood glucose, elevated blood lipids and obesity.

- **Characteristics of NCDs:**

- NCDs have a **Complex etiology** (causes)
- NCDs have **Multiple risk factors**
- NCDs have a **Long latency period**
- NCDs have a **Non-contagious** origin (noncommunicable)
- NCDs have a **Prolonged** course of illness
- NCDs cause **Functional impairment or disability**

The 4 main types of noncommunicable diseases: **cardiovascular diseases, cancer, chronic respiratory diseases, & diabetes.**

Others include, but are not limited to, **Chronic neurologic disorders (e.g., Alzheimer's, dementias); Arthritis/Musculoskeletal diseases; and Unintentional injuries.**

NCDs are the leading cause of death in the world, representing 63% of all annual deaths. NCDs kill more than 36 million people each year.

Some 80% of all NCD deaths occur in low- and middle-income countries.

NCD deaths worldwide now exceed all communicable, maternal & perinatal nutrition-related deaths combined & represent an emerging global health threat.

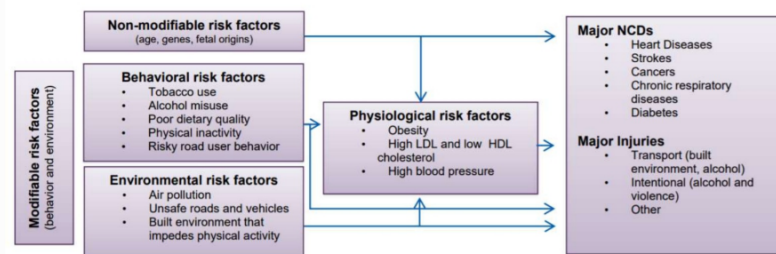
More than 9 million of all deaths attributed to NCDs occur before the age of 60.

NCDs affect women and men almost equally.

Noncommunicable diseases force many people into, or entrench them in poverty due to catastrophic expenditures for treatment. They also have a large impact on undercutting productivity.

Eliminating major risks for noncommunicable diseases could prevent most NCDs; at around 3-quarters of heart disease, stroke & type 2 diabetes would be prevented; & 40% of cancer would be prevented.

NCD: Risk and Prevention



Risk Factor: Definition

☒ Risk factors: An aspect of personal behavior or lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition.

☒ Modifiable Risk Factor: A **behavioral** risk factor that can be reduced or controlled by intervention, thereby reducing the probability of disease.

WHO has prioritized 4 modifiable risk factors:

- 1) Physical inactivity,
- 2) Tobacco use,
- 3) harmful Alcohol use,
- 4) Unhealthy diets (increased fat & sodium, with low fruit & vegetable intake).

Most noncommunicable diseases are the result of these 4 factors.

☒ These four behaviors lead to four key metabolic/physiological changes:

1. raised blood pressure,
2. overweight/obesity,
3. raised blood glucose
4. raised cholesterol.

☒ Non-Modifiable Risk Factor: A risk factor that cannot be reduced or controlled by intervention; eg: Age, Gender, Race, & Family history (genetics).

- Risk factors:

☒ Common, **modifiable, preventable risk factors underlie most noncommunicable diseases.**

- Metabolic Risk Factors:

☒ "Metabolic" = the biochemical processes involved in the body's normal functioning

☒ **Behaviors** (modifiable risk factors) can lead to **metabolic/physiologic changes.**

WHO has prioritized 4 metabolic risk factors:

- 1- Raised blood pressure
- 2- Raised total cholesterol
- 3- Elevated glucose
- 4- Overweight & obesity

Noncommunicable Diseases
4 Diseases, 4 Modifiable Shared Risk Factors

	Tobacco Use	Unhealthy diets	Physical Inactivity	Harmful Use of Alcohol
Cardio-vascular	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Diabetes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cancer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Chronic Respiratory	<input checked="" type="checkbox"/>			

- Selected non-communicable diseases:

Cardiovascular Diseases: (CVD)

- a group of disorders of heart & blood vessels, include:

- o **coronary heart disease:** disease of the blood vessels supplying the heart muscle;
- o **cerebrovascular disease:** disease of the blood vessels supplying the brain;
- o **peripheral arterial disease:** disease of blood vessels supplying the arms & legs;
- o **rheumatic heart disease:** damage to the heart muscle & heart valves from rheumatic fever, caused by streptococcal bacteria;
- o **congenital heart disease:** malformations of heart structure existing at birth;
- o **deep vein thrombosis & pulmonary embolism:** blood clots in the leg veins, which can dislodge & move to the heart & lungs.

- **Global Burden of Cardiovascular Disease:**

☒ **CVDs are the #1 cause of death globally** taking an estimated 17.9 million lives each year (Almost 30% of all global deaths).

☒ More people die annually from CVDs than from any other cause.

☒ 4 out of 5 CVD deaths are due to **heart attacks and strokes**, & one third of these deaths occur prematurely in people **under 70 years of age.**

☒ Over 80% CVD deaths occur in low- and middle- income countries.

☒ By 2030, almost 25 million people will die from CVDs

Cardiovascular Disease Risk Factors:

☒ **Major modifiable risk factors:**

High blood pressure - Abnormal blood lipids
- Tobacco use - Unhealthy diet (salt) - Physical inactivity - Diabetes - Obesity.

☒ **Other modifiable risk factors:**

Low socioeconomic status - Mental ill health (depression) - Psychosocial stress - Heavy alcohol use - Use of certain medication -

Lipoprotein(a)

☒ **Non-modifiable risk factors:**

Age/Hereditiy-family history/Gender/
Ethnicity-race

☒ "Novel" risk factors:

Excess homocysteine in blood - Inflammatory markers (**Creactive** protein) - Abnormal blood coagulation (elevated blood levels of **fibrinogen**) - Why are cardiovascular diseases a development issue in low- and middle-income countries?

☒ People in low- & middle-income countries often do not have the benefit of integrated primary health care programmes for early detection & treatment of people with risk factors compared to people in high-income countries.

☒ People in low- & middle-income countries who suffer from CVDs & other noncommunicable diseases have less access to effective & equitable health care services which respond to their needs. As a result, many people in low- & middle-income countries are detected late in the course of the disease & die younger from CVDs & other noncommunicable diseases, often in their most productive years.

☒ **The poorest people in low- and middle-income countries are affected most.** At the household level, CVDs & other noncommunicable diseases contribute to poverty due to catastrophic health spending & high out-of-pocket expenditure. - **How can the burden of CVD be reduced?**

"Best buys" or very cost effective interventions that are feasible to be implemented even in low-resource settings have been identified by WHO for prevention and control of cardiovascular diseases.

They include 2 types of interventions: **population-wide & individual**, which are recommended to be used in combination to reduce the greatest CVD burden.

☒ Examples of population-wide interventions that can be implemented to reduce CVDs include:

- o comprehensive **tobacco control policies**
- o **taxation** to reduce the intake of foods that are high in fat, sugar and salt
- o building **walking & cycle paths** to increase physical activity
- o **strategies to reduce harmful use of alcohol**
- o providing **healthy school meals** to children.

☒ At the individual level, for prevention of first heart attacks & strokes, individual health-care interventions need to be targeted to those at high total CVD risk or those with single risk factor levels above traditional thresholds, such as hypertension & hypercholesterolemia.

The former approach is more cost-effective than the latter & has the potential to substantially reduce cardiovascular events. This approach is feasible in primary care in low-resource settings, including by non-physician health workers.

☒ For secondary prevention of CVD in those with established disease, including diabetes, **treatment** with the following medications are necessary:

- o aspirin
- o beta-blockers
- o angiotensin-converting enzyme inhibitors
- o statins.

Cancer:

☒ Generic term for a large group of diseases that can affect any part of the body.

☒ **"Rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body & spread to other organs."** (WHO, 2012)

☒ Benign tumors

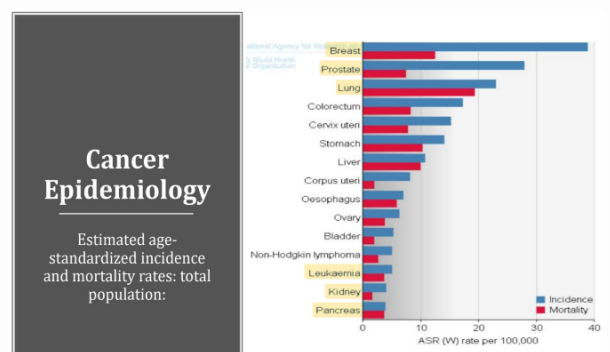
☒ Malignant tumors

- Global Burden of Cancer:

☒ 7.6 million people died from cancer in 2008. ☒ 70% of all cancer deaths occur in low- and middle-income countries.

☒ Deaths from cancer are estimated to reach 13.1 million by 2030.

☒ About 30% of cancers are attributable to behavior risk factors



Diabetes:

- Diabetes is a disorder of metabolism— the way the body uses digested food for growth & energy.
- There are 4 types: Type 1, Type 2, Gestational, & Pre-Diabetes (Impaired Glucose Tolerance).
- Type 2 is caused by modifiable risk factors & is the most common worldwide.**
- >90% of all adult diabetes cases are Type 2

- Burden of Disease:

- 347 million people worldwide have diabetes.
- More than 80% of diabetes deaths occur in low- & middle-income countries.
- WHO projects that diabetes deaths will increase by two thirds between 2008 & 2030.
- Healthy diet, regular physical activity, maintaining a normal body weight & avoiding tobacco use can prevent or delay the onset of type 2 diabetes.

- Diabetes Risk Factors:

Major modifiable Risk Factors:

- Unhealthy diets - Physical Inactivity - Obesity or Overweight - High BP - High Cholesterol.

Other Modifiable Risk Factors:

- Low socioeconomic status - Heavy alcohol use - Psychological stress - High consumption of sugar-sweetened beverages - Low consumption of fiber

Non-modifiable Risk Factors:

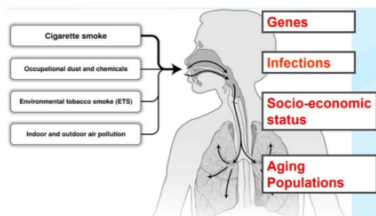
- Increased age - Family history/genetics -Race - Distribution of fat

Other Risk Factors:

- Low birth weight - Presence of autoantibodies

Chronic Respiratory Diseases

- A leading cause of death
- High under-diagnoses rates
- 90% of deaths occur in low-income countries
- Risk factors:



- Why Risk Factors?

- Surveillance for non-communicable disease can be difficult because of:
 - Lag time between exposure & health condition,
 - More than one exposure for a health condition,
 - Exposure linked to more than one health condition.
- Interventions that target risk factors are needed to prevent disease.

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Risk Factor Surveillance

