



AL MUSTAQBAL UNIVERSITY
College of Pharmacy / First Stage



Public Health

(L 8) Epidemiology of Non Communicable Diseases

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Key facts

- **Noncommunicable diseases (NCDs)** kill 41 million people each year, equivalent to 74% of all deaths globally.
- Each year, 17 million people die from a NCD **before age 70**; 86% of these **premature deaths** occur in low- and middle-income countries.
- Of all NCD deaths, 77% are in **low-** and **middle-income** countries.
- **Cardiovascular diseases** account for most NCD deaths, or 17.9 million people annually, followed by **cancers** (9.3 million), **chronic respiratory diseases** (4.1 million), and **diabetes** (2.0 million including kidney disease deaths caused by diabetes).
- These **four groups** of diseases account for over 80% of all premature NCD deaths.
- **Tobacco** use, **physical inactivity**, the harmful use of **alcohol**, unhealthy **diets** and **air pollution** all increase the risk of dying from an NCD.

Overview

Noncommunicable diseases (NCDs), also known as **chronic diseases**, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. NCDs are the **number one** cause of death and disability in the world.

The main types of NCD are **cardiovascular diseases** (such as heart attacks and stroke), **cancers**, **chronic respiratory diseases** (such as chronic obstructive pulmonary disease and asthma) and **diabetes**. Many other important conditions are also considered NCDs, including injuries and mental health disorders.

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

These diseases are driven by forces that include rapid **unplanned urbanization**, globalization of **unhealthy lifestyles and population ageing**. **Unhealthy diets** and a lack of **physical activity** may show up in people as **raised blood pressure**, increased **blood glucose**, elevated **blood lipids** and **obesity**. These are called **metabolic risk factors** and can lead to cardiovascular disease, the leading NCD in terms of premature deaths.

Communicable versus non-communicable diseases



Communicable diseases

- Sudden onset
- Single cause
- Short natural history
- Short treatment schedule
- Cure is achieved
- Single discipline
- Short follow up
- Back to normalcy

Non-communicable diseases

- Gradual onset
- Multiple causes
- Long natural history
- Prolonged treatment
- Care predominates
- Multidisciplinary
- Prolonged follow up
- Quality of life after treatment

Risk factors

Modifiable behavioural risk factors

A behavioral risk factor that can be reduced or controlled by intervention, thereby reducing the probability of disease., such as tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol, all increase the risk of NCDs.

- **Tobacco** accounts for over 8 million deaths every year (including from the effects of exposure to **second-hand smoke**) .
- 1.8 million annual deaths have been attributed to **excess salt/sodium intake**.
- More than half of the 3 million annual deaths attributable to **alcohol use** are from NCDs, including cancer.
- 830 000 deaths annually can be attributed to **insufficient physical activity**.

Non-Modifiable Risk Factor

A risk factor that cannot be reduced or controlled by intervention; for example: Age, Gender, Race, and Family history (genetics).

Metabolic risk factors

Metabolic risk factors contribute to four key metabolic changes that increase the risk of NCDs:

- raised blood pressure;
- overweight/obesity;
- hyperglycemia (high blood glucose levels); and
- hyperlipidemia (high levels of fat in the blood).

In terms of attributable deaths, the leading metabolic risk factor globally is **elevated blood pressure** (to which 19% of global deaths are attributed), followed by **raised blood glucose** and **overweight and obesity**.

Environmental risk factors

Several environmental risk factors contribute to NCDs.

Air pollution is the largest of these, accounting for 6.7 million deaths globally, of which about 5.7 million are due to NCDs, including stroke, ischemic heart disease, chronic obstructive pulmonary disease, and lung cancer.

Socioeconomic impact

NCDs threaten progress towards the **2030 Agenda for Sustainable Development**, which includes a target of reducing the probability of death from any of the four main NCDs between ages 30 and 70 years by **one third by 2030**.

Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to impede poverty reduction initiatives in low-income countries.

Vulnerable and socially disadvantaged people get sicker and die sooner than people of higher social positions, especially because they are at greater risk of being exposed to harmful products, such as tobacco, or unhealthy dietary practices, and have limited access to health services.

The extremely high costs of NCDs, including treatment, which is often lengthy and expensive, combined with loss of income, force millions of people into poverty annually and stifle development.

WHO response

The 2030 Agenda for Sustainable Development recognizes **NCDs** as a major challenge for sustainable development.

As part of the Agenda, **heads of state and government** committed to develop ambitious national responses, by 2030, to reduce by **one third premature mortality** from NCDs through prevention and treatment (SDG target 3.4).

WHO plays a key leadership role in the **coordination and promotion** of the global fight against NCDs and the achievement of the Sustainable Development Goals target 3.4.

People, Planet, and Prosperity

The ideas of people, planet, and prosperity underpin the [2030 Agenda for Sustainable Development](#), an international plan signed by all United Nations (U.N.) member states in 2015. This plan outlines 17 Sustainable Development Goals (SDG), with 169 underlying targets. The plan was developed by a U.N. working group comprised of representatives from 70 countries, who gathered information and engaged with global communities to determine what the SDGs should include.

The 17 goals within the framework are:



NCDs in SDG 3

'Ensure healthy lives and promote well-being for all at all ages'

- Target 3.3 By 2030, end the epidemics of HIV, TB and malaria³
- Target 3.4 **By 2030, reduce by one third premature mortality from NCDs and promote mental health and well-being**
- Target 3.5 Strengthen the prevention and treatment of substance abuse, including harmful use of alcohol
- Target 3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents
- Target 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
- Target 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- Target 3.a **Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate**
- Target 3.b Support the research and development of vaccines and medicines for the...NCDs that primarily affect developing countries



3 GOOD HEALTH AND WELL-BEING



Strategies for the Prevention

▪ Approach to prevention of chronic diseases can be considered under three headings:

1-Primordial prevention: One of the most important ways of reducing deaths from noncommunicable diseases (NCDs) is to control the risk factors that lead to their development. These include reducing the use of tobacco and the harmful use of alcohol, maintaining an active lifestyle and consuming a healthy diet, and improving air quality. Actions towards these goals are cost-effective ways for countries to reduce the number of NCD deaths. Tackling these risk factors can not only save lives, but also provide a huge economic boost for countries.

▪ Examples : immunization , good nutrition , health education, counseling, environmental sanitation, purification of water , protection against accidents at work place and seat belts.

▪ Requires : accurate knowledge of causative agent and process of disease.

2-Primary prevention:

▪ That is by early detection using screening tests will change the course of disease.

▪ Examples : high blood pressure , Diabetes , Cancer of the breast , Cancer of the cervix colorectal cancers, lung cancer etc.

3- Secondary prevention : management of NCDs is critical. This includes detection, screening and treatment of the diseases. Modifying the risk factors in the presence of the manifested disease by changes in lifestyle and/or use of drugs.

4- Tertiary Prevention : alleviation and limitation of disability improvement of quality of life , Rehabilitation and follow up.

Non communicable diseases are usually thought of as chronic conditions that do not result from an acute infectious process.

These conditions cause death, dysfunction, or impairment in the quality of life, and they usually develop over relatively long periods, at first without causing symptoms; but after disease manifestations develop, there may be a protracted period of impaired health.

Generally, these conditions or diseases result from prolonged exposure to causative agents, many associated with personal behaviors and environmental factors.

Noncommunicable diseases - NCDs - heart and lung diseases, stroke, cancer and diabetes

WHAT CAN YOU DO TO AVOID NCDs?



**Follow medical
advice**



**Stay physically
active**



Get vaccinated



Breastfeed



Tobacco use



**Harmful use
of alcohol**

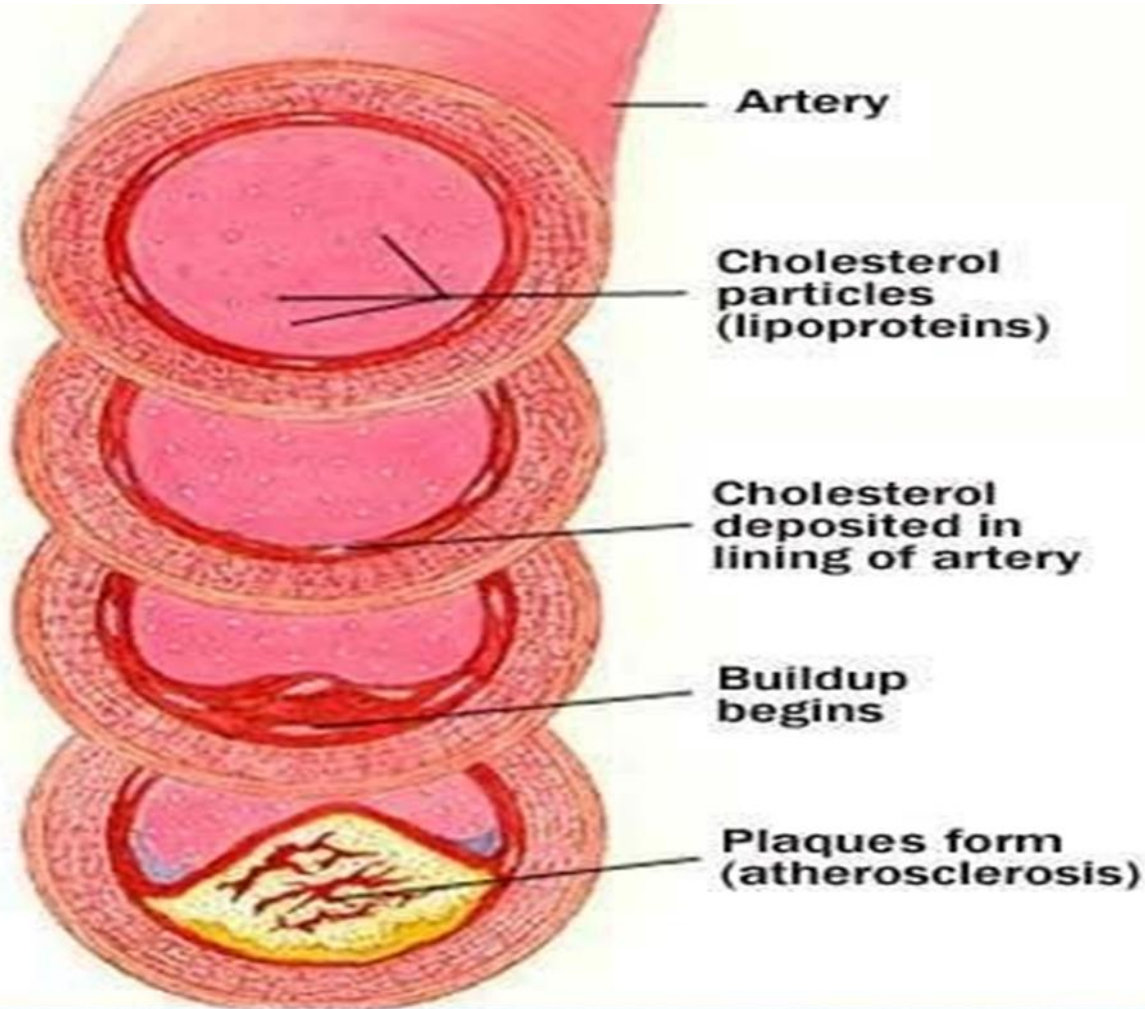


Air pollution

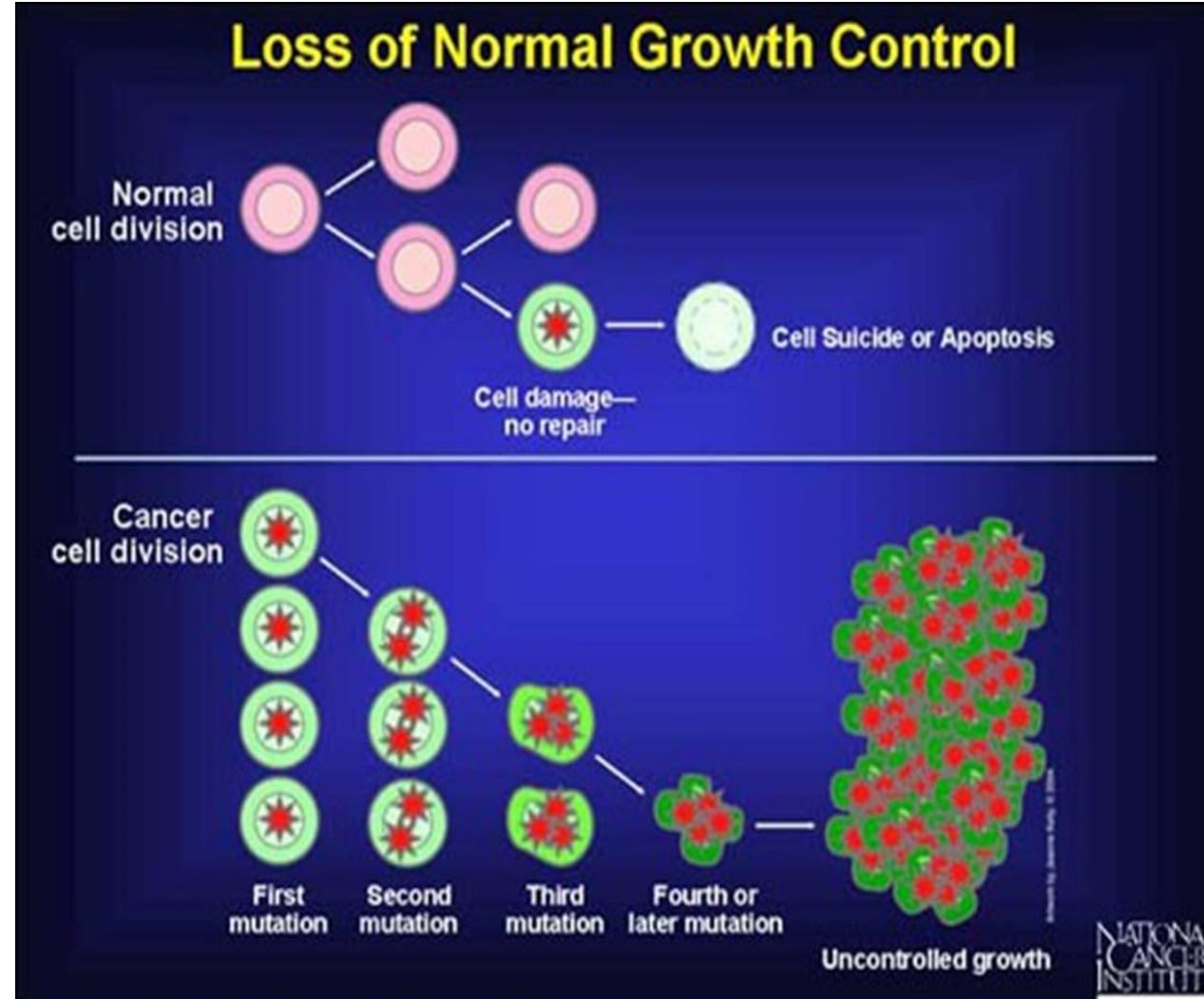


**Consumption
of food and
drinks high
in salt, sugar
or unhealthy fats**

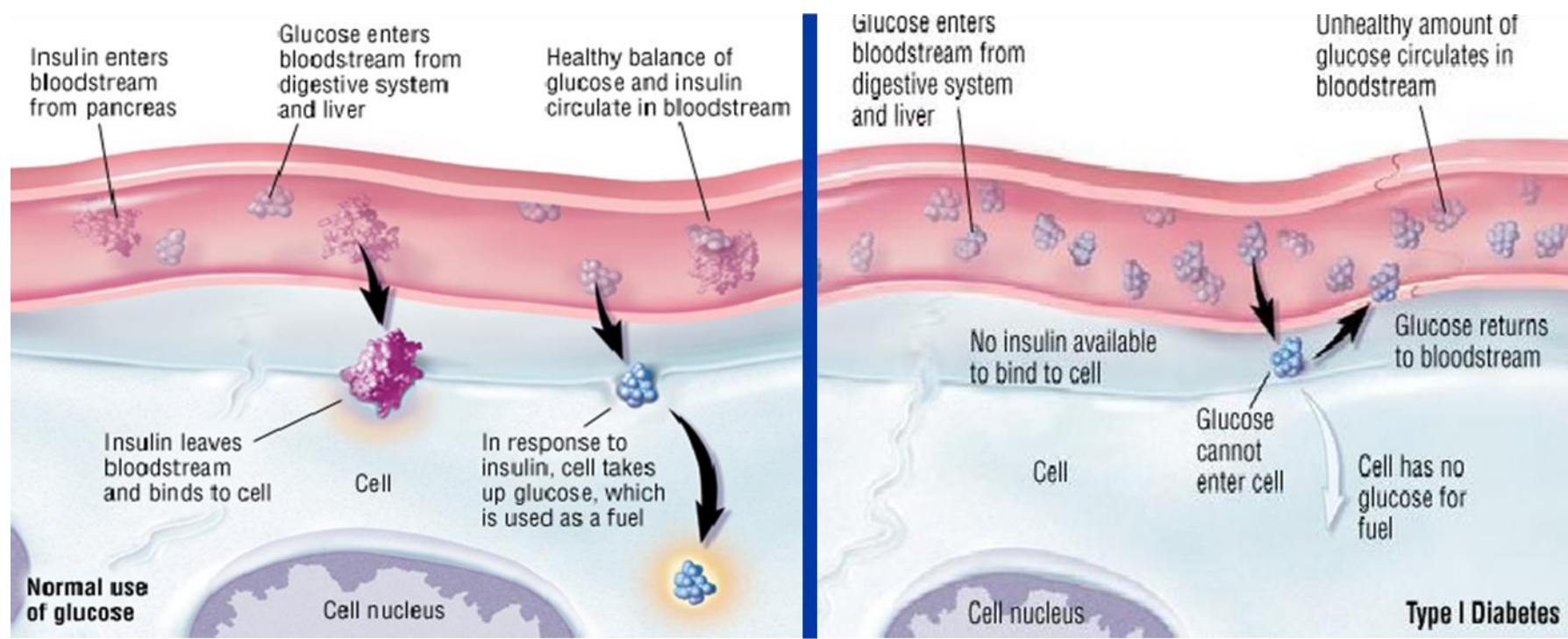
Cardiovascular Disease



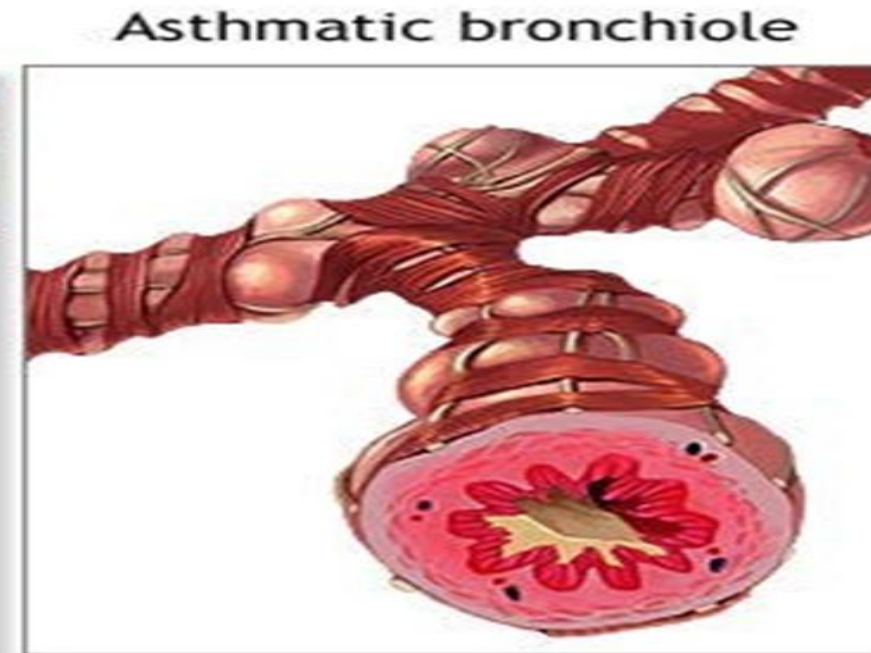
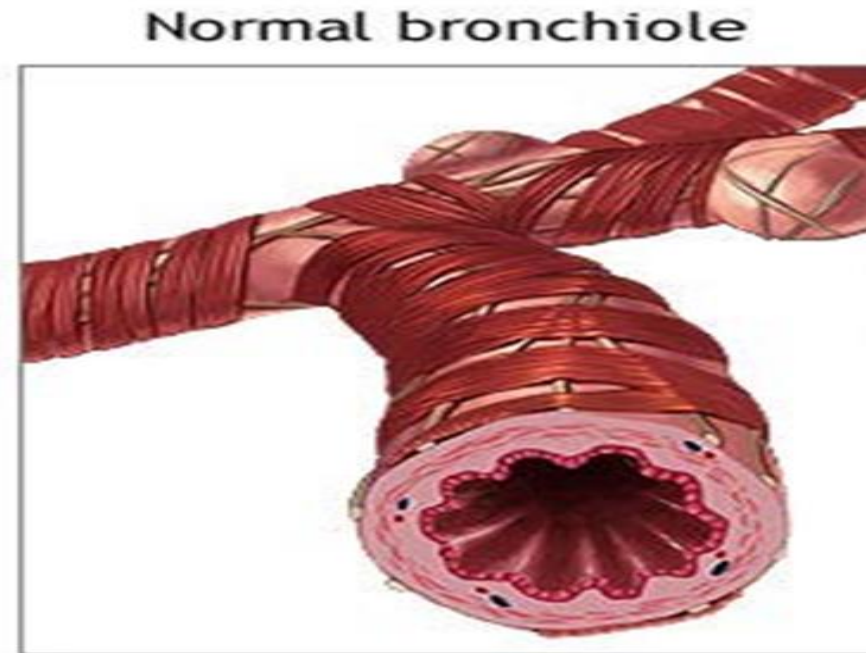
Cancer



Diabetes



Chronic Respiratory Diseases: Asthma





THANK YOU!



Cariovascular
Diseases



Chronic Respiratory
Diseases



Diabetes



Cancer