

Epidemiology of Chronic and Non-Communicable Diseases

Definition:

Chronic diseases are defined as **impairments** or **deviations from normal structure** or function that persist over a **long period of time** and lead to **lifestyle modifications**.

Key Characteristics of Chronic Diseases	Examples of Chronic Diseases (Non-Communicable Diseases - NCDs)
<ul style="list-style-type: none"> • Long duration (usually more than 3 months) • Often permanent or progressive • May result in residual disability • Require continuous medical supervision • May require patient rehabilitation or lifestyle modification 	<ul style="list-style-type: none"> • Cardiovascular diseases (e.g., ischemic heart disease, stroke) • Chronic respiratory diseases (e.g., asthma, COPD) • Diabetes mellitus • Hypertension • Mental illnesses • Cancer • Chronic kidney disease • Musculoskeletal disorders (e.g., arthritis)

Epidemiological Importance:

Chronic diseases are a leading cause of morbidity and mortality globally.

Global Burden of NCDs

As per the data from 2021:

- **Majority of deaths occur **prematurely**, i.e., before the age of **70 years**.**
- **82% of premature NCD deaths were reported from low- and middle-income countries (LMICs).**

Major NCDs and Their Contribution to Mortality

The four major groups of NCDs are:

1. **Cardiovascular diseases** – leading cause of NCD-related deaths.
2. **Cancers** – second major contributor.
3. **Chronic respiratory diseases** – such as chronic obstructive pulmonary disease (COPD) and asthma.
4. **Diabetes mellitus**

Together, these four conditions are responsible for **approximately 80% of all premature NCD-related deaths**.

Gaps in the Natural History of Noncommunicable Diseases (NCDs)

Gap	Description	Example
Absence of agent	Cause not clearly known	Hypertension, diabetes
Multifactorial causation	Multiple risk factors involved	Smoking + diet + genetics
Long latent period	Disease takes years to appear	Cervical cancer
Indefinite onset	Gradual development	Hypertension, diabetes

NCDs are strongly associated with the following **Risk Factors**:

Modifiable, Behavioural and Environmental, including:

- **Tobacco use** (smoking and smokeless forms)
- **Physical inactivity**
- **Unhealthy diets** (high in sugar, salt, and trans fats)
- **Harmful use of alcohol**
- **Air pollution** (both outdoor and indoor)

Key Strategies for NCD Prevention			
Immediate Priority Interventions	Cancer Prevention-Specific Strategies	Service-Based and Systemic Measures	Integrated Approach to NCD Control
<ol style="list-style-type: none"> 1. Tobacco Control 2. Alcohol Control 3. Dietary Improvements 	<ol style="list-style-type: none"> 1. Vaccination against Hepatitis B 2. HPV vaccination 3. Protection from occupational and environmental carcinogens 	<ol style="list-style-type: none"> 1. Screening and health examinations 2. Pollution control 3. Health education for behavioural and lifestyle modifications 4. Political commitment 	<ol style="list-style-type: none"> 1. Address multiple risk factors simultaneously.

WHO STEPS Approach

The **STEPS NCD Risk Factors Survey** developed by WHO supports surveillance of NCD risk factors through:

1. **Questionnaires**
2. **Physical measurements**
3. **Biochemical measurements**

Core topics include demographic profile, health status, and health behaviours. This data guides targeted interventions.

NCDs in the 2030 Agenda for Sustainable Development

- **Target 3.4** of the SDGs aims to reduce premature mortality due to NCDs by **one-third by 2030**.