Epidemics of Non-communicable Diseases

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Non Communicable Diseases

Definition

- Also known as chronic diseases, are not passed from person to person.
- They are of long duration and generally of slow progression.
- Chronic conditions are characterized by the following:

1. Do not result from an acute infectious process
2. Are not communicable

Continued

- Cause premature morbidity dysfunction.
- Reduced quality of life.
- Usually a protracted period of impaired health during its manifestations.
- Usually develop and progress over long periods.

NCDs In India

- Non-communicable disease continues to be an important public health problem in India.
- being responsible for a major proportion of mortality and morbidity.
- In India, there is no regular system for collecting data on non-communicable diseases (NCDs)
- Lack of trained health care workers, with inadequate knowledge and skills.
- Empowerment of the community through effective health education.
- free health care and social insurance would prove beneficial in effectively controlling the growing prevalence of NCDs.

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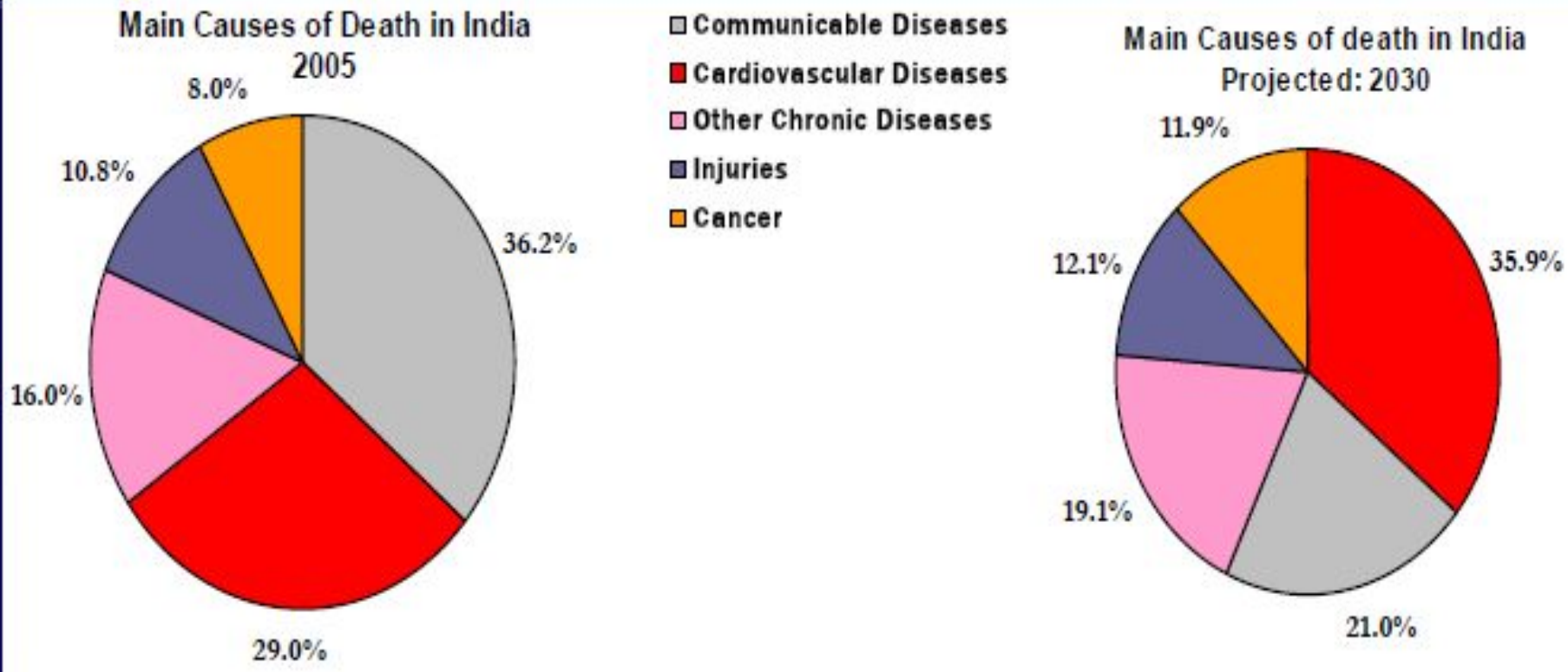
- In India, non-communicable diseases (NCDs) accounted for 40% of all hospital stays and 35% of all outpatient visits in 2004.
- Chronic diseases are estimated to account for 53% of all deaths and 44% of disability-adjusted life-years (DALYs) lost in 2005.
- The projected cumulative loss of national income for India due to non-communicable disease mortality for 2006–2015 is expected to be USD237 billion.
- By 2030, this productivity loss is expected to double to 17.9 million years lost .


Main Causes of Death in India
2005
8.0%
10.8%
36.2%
16.0%
29.0%
Communicable Diseases
Cardiovascular Diseases
Other Chronic Diseases
Injuries
Cancer
Main Causes of death in India
Projected: 2030
11.9%
12.1%
35.9%
19.1%
21.0%

Proportional Mortality In India

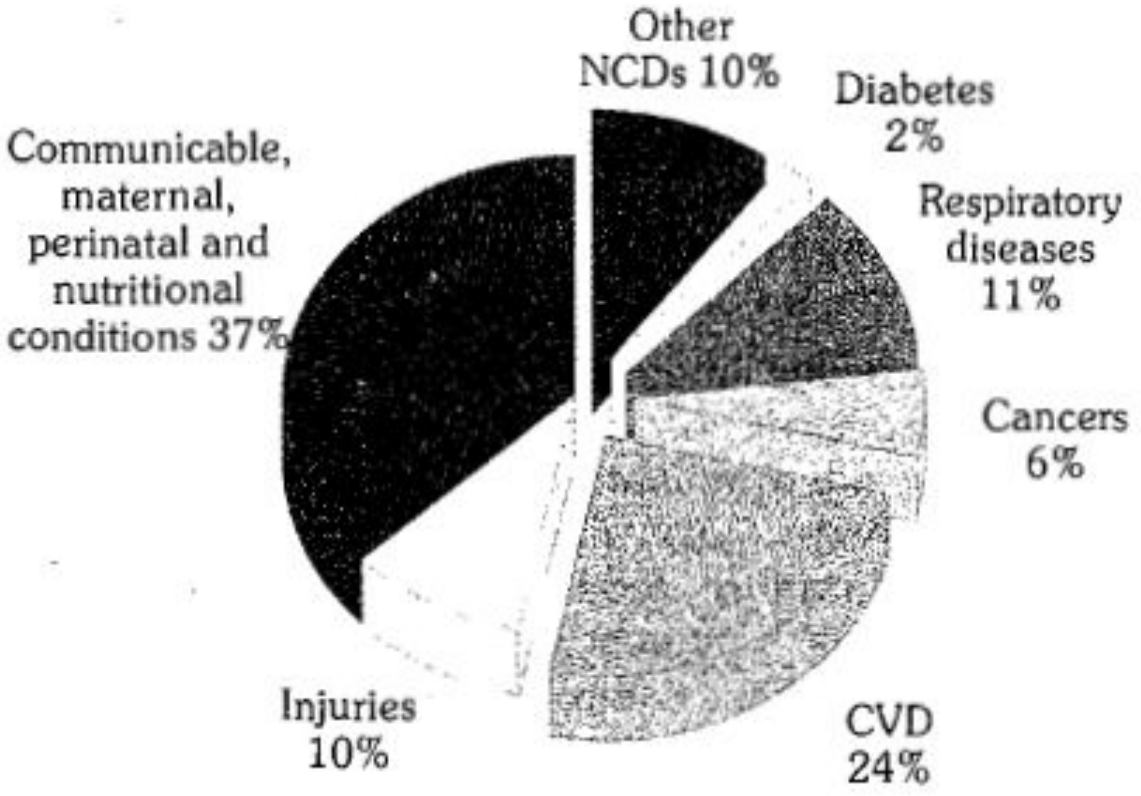


FIG. 1

Proportional mortality in India (% of total deaths, all ages)

Major Non-communicable Diseases

NCDs are many in number about (>15) but these given are leading cause of NCDs

1. Cardiovascular disease
2. Cancer
3. Chronic lung disease
4. Diabetes
5. Obesity

1. Cardiovascular Diseases

- Cardiovascular disease is caused by disorders of the heart and blood vessels, and includes coronary heart disease.

- Although heart attacks and strokes are major killers in all parts of the world, 80% of premature deaths from these causes could be avoided by controlling the main risk factors: tobacco, unhealthy diet and physical inactivity.

Cardiovascular Diseases: Contributing Factors

- A person's genetic make-up
- Foundations of adult health are laid in early life
- Socioeconomic group
- Mental health
- Diet
- Overweight and obesity
- Inactivity
- Tobacco
- Alcohol
- Diabetes
- Globalization and urbanization

Cardiovascular Diseases:
Prevention

- Focusing on a combination of risk factors for cardiovascular disease.
- Implementing medical screening for individuals at risk.
- Providing effective and affordable treatment to those who require it.

continued

- It has been predicted that mortality from coronary heart disease (CHD) in the United Kingdom could be halved by small changes in cardiovascular risk factors.
- 1% decrease in cholesterol in the population could lead to a 2–4% CHD mortality reduction.
- 1% reduction in smoking prevalence could lead to 2000 fewer CHD deaths per year.
- 1% reduction in population diastolic blood pressure could prevent around 1500 CHD deaths each year.

Cardiovascular Diseases: Treatment

- Effective measures are available for people at high risk.

- Combination drug therapy (such as aspirin, beta blocker, diuretic and statin) can lead to a 75% reduction in myocardial infarction (heart attack) among those at high risk.

- Coronary patients in the world still require more intensive blood pressure management.

2. Cancer

- Cancer is the uncontrolled growth and spread of cells that arises from a change in one single cell.
- The change may be started by external agents and inherited genetic factors and can affect almost any part of the body.
- The transformation from a normal cell into a tumor cell is a multistage process where growths often invade surrounding tissue and can metastasize to distant sites.

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- Physical carcinogens, such as ultraviolet and ionizing radiation or asbestos.
- Chemical carcinogens, such as vinyl chloride, or betnapthyl amine components of tobacco smoke, aflatoxin (a food contaminant) and arsenic (a drinking-water contaminant)
- Biological carcinogens, such as infections from certain viruses, bacteria or parasites.

Most chemicals to which people are exposed in everyday life have not been tested for long-term impact on human health.

Continued

- Lung, breast, colorectal, stomach and liver cancers.are major cause of death
- In high-income countries, the leading causes of cancer deaths are lung cancer among men and breast cancer among women.
- In low- and middle-income countries cancer levels vary according to the prevailing underlying risks.
- In sub-Saharan Africa cervical cancer is the leading cause of cancer death among women.

Cancer:

Risk factors

- Tobacco use
- Unhealthy diet
- Insufficient physical activity
- The harmful use of alcohol

- Infections (hepatitis B, hepatitis C (liver cancer), human papilloma virus (HPV; cervical cancer), *helicobacter pylori* (stomach cancer)
- Radiation

- Variety of environmental and occupational exposures of varying importance

WHO approach to cancer.

- Prevention,
- Early Detection,
- Screening,
- Treatment
- Palliative Care.

continued

- About 10 million new cases of cancer each year are preventable through reducing tobacco and alcohol use, moderating diet and immunizing against viral hepatitis B.
- Early detection and prompt treatment can reduce incidence one third.
- Effective techniques are sufficiently well established to permit comprehensive palliative care for the remaining more advanced cases.

3. Chronic Respiratory Diseases:

According to the WHO Global Status Report on NCDs 2010,

- Smoking is estimated to cause about 71% of all lung cancer deaths and 42% of chronic respiratory disease worldwide.
- The highest overall prevalence for smoking in 2008 was estimated in the European Region, at nearly 29%.

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- According to the available data for 1997–2006, over 12% of infant deaths in the world are due to respiratory diseases.
- Indoor air pollution from biological agents related to damp and mould increases the risk of respiratory disease in children and adults.
- Children are particularly susceptible to the health effects of damp, which include respiratory disorders such as irritation of the respiratory tract, allergies and exacerbation of asthma.
- Damp is often associated with poor housing and social conditions, poor indoor air quality and inadequate housing hygiene.

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- Most countries in the world and the European Region have introduced a wide range of comprehensive policies to reduce and eliminate tobacco smoke.

- For example, the advertising of cigarettes and the sale of tobacco products to minors have been banned in more than 80% of the countries in the Region.

- Ireland, Turkey and the United Kingdom are the first countries to make public places 100% smoke free.

4. Diabetes

- Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin (a hormone that regulates blood sugar)

- Or alternatively, when the body cannot effectively use the insulin it produces.

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- Diabetes is predicted to become the seventh leading cause of death in the world by the year 2030.

- Total deaths from diabetes are projected to rise by more than 50% in the next 10 years.

Continued

- 80% of diabetes deaths occur in low- and middle-income countries.
- In developed countries most people with diabetes are above the age of retirement.
- In developing countries those most frequently affected are aged between 35 to 64.

Diabetes: Health Implications

- Elevated blood sugar is a common effect of uncontrolled diabetes, and over time can damage the heart, blood vessels, eyes, kidneys, and nerves.

Some health complications from diabetes include:

- Diabetic retinopathy
- Diabetic neuropathy
- Diabetes is among the leading causes of kidney failure; 10-20% of people with diabetes die of kidney failure.
- Diabetes increases the risk of heart disease and stroke; 50% of people with diabetes die of cardiovascular disease (primarily heart disease and stroke).

Diabetes: Prevention

- Achieve and maintain healthy body weight.
- Be physically active - at least 30 minutes of regular, moderate-intensity activity on most days.
- Early diagnosis can be accomplished through relatively inexpensive blood testing.
- Treatment of diabetes involves lowering blood sugar and the levels of other known risk factors that damage blood vessels.
- Tobacco cessation is also important to avoid complications.

Diabetes: Control

- People with type 1 diabetes require insulin;
- People with type 2 diabetes can be treated with oral medication, but may also require insulin.
- Blood pressure control
- Foot care

Other cost saving interventions include:

- Screening and treatment for retinopathy (which causes blindness);
- Blood lipid control (to regulate cholesterol levels);
- Screening for early signs of diabetes-related kidney disease and treatment.

These measures should be supported by a healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use.

5. Obesity

- Obesity is one of the greatest public health challenges of the 21st century.

- Excess weight drastically increases a person's risk of developing a number of noncommunicable diseases (NCDs), including cardiovascular disease, cancer and diabetes.

- The risk of developing more than one of these diseases (co-morbidity) also increases with increasing body weight.

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- Overweight and obesity are defined as "abnormal or excessive fat accumulation that may impair health“
- Body mass index (BMI) – the weight in kilograms divided by the square of the height in meters (kg/m2) – is a commonly used index to classify overweight and obesity in adults.
- WHO defines overweight as a BMI equal to or more than 25, and obesity as a BMI equal to or more than 30.

BMI classification	
Underweight	< 18.5
Normal range	18.5 - 24.9
Overweight	⩾ 25.0
Preobese	25.0 - 29.9
Obese	⩾ 30.0
Obese class I	30.0 - 34.9
Obese class II	35.0 - 39.9
Obese class III	⩾ 40.0

Continued

- Globally, over 40 million preschool children were overweight in 2008
- Childhood obesity is one of the most serious public health challenges of the 21st century.
- Overweight children are likely to become obese adults.
- Overweight children are more likely than non-overweight children to develop diabetes and cardiovascular diseases at a younger age, which in turn are associated with a higher chance of premature death and disability.

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- Overweight and obesity are linked to more deaths worldwide than underweight
- 65% of the world's population live in a country where overweight and obesity kills more people than underweight.
- This includes all high-income and middle-income countries.
- Globally, 44% of diabetes, 23% of ischaemic heart disease and 7–41% of certain cancers are attributable to overweight and obesity.

- About 30% of people dying from NCDs in low- and middle-income countries are aged under 60 years and are in their most productive period of life.
- The prevalence of NCDs is rising rapidly and to exceed as the most common causes of death by 2030.
- In most middle- and high-income countries NCDs were responsible for more deaths than all other causes of death.
- In high-income countries reporting the proportion of NCD deaths to total deaths to be more than 70%.

Status & Trends in Risk Factors of NCD

- Common, preventable risk factors underlie most NCDs.

- These risk factors are a leading cause of the death and disability burden in nearly all countries, regardless of economic development.

- The leading risk factor globally for mortality is:

1. Raised blood pressure (responsible for 13% of deaths globally),
2. Followed by tobacco use (9%),
3. Raised blood glucose (6%),
4. Physical inactivity (6%),
5. Overweight and obesity (5%).

Continued

- Several risk factors have the highest prevalence in high-income countries. These include:

1. Physical inactivity among women,
2. Total fat consumption,
3. Raised total cholesterol.

- Some risk factors have become more common in middle-income countries. These include:

1. Tobacco use among men,
2. Overweight and obesity.

Prevention of NCDs

1. Protecting people from tobacco smoke and banning smoking in public places warning about the dangers of tobacco use, enforcing bans on tobacco advertising, promotion and sponsorships and raising taxes on tobacco.

2. Restricting access to retailed alcohol, enforcing bans on alcohol advertising and raising taxes on alcohol.

3. Reduce salt intake and salt content of food.

4. Replacing trans-fat in food with polyunsaturated fat.
5. Promoting public awareness about diet and physical activity, including through mass media.

Continued

- Vaccination against Hepatitis B,
- Vaccination against human papillomavirus (HPV).
- Protection against environmental or occupational risk factors.
- Control of food, water and air pollution.
- Influencing patterns of human behaviour and life-styles through intensive education; upgrading standards of institutional care and developing and applying better methods of comprehensive medical care.

Global Status Report on Non-communicable Diseases

The leading causes of NCD deaths in 2008 were:

- **Cardiovascular diseases** (17 million deaths, or 48% of NCD deaths).
- **Cancers** (7.6 million, or 21% of NCD deaths).
- **Respiratory diseases**, including asthma and chronic obstructive pulmonary disease (COPD), (4.2 million).
- **Diabetes** caused an additional 1.3 million deaths.
- **Behavioral risk factors**, including tobacco use, physical inactivity, and unhealthy diet, are responsible for about 80% of coronary heart disease and cerebrovascular disease.

- More than nine million of all deaths, attributed to noncommunicable diseases (NCDs) occur before the age of 60.

- Around the world, NCDs affect women and men almost equally.

- NCDs are the leading cause of death in the world, responsible for 63% of the 57 million deaths that occurred in 2008.
- The majority of these deaths - 36 million - were attributed to cardiovascular diseases and diabetes, cancers and chronic respiratory diseases.

WHO Global Action Plan for the Prevention and Control of NCDs (2013-2020)

- 25 per cent relative reduction in premature mortality from cardiovascular diseases, cancer, diabetes and chronic respiratory diseases by 2025.
- These four diseases make the largest contribution to mortality and morbidity due to NCDs.
- It will target four behavioural risk factors - tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol.

The Voluntary Global Targets:

:

1. A 25 per cent relative reduction in risk of premature mortality from cardiovascular diseases, cancer, diabetes and chronic respiratory disease.
2. At least 10 per cent relative reduction in the harmful use of alcohol as appropriate within national context.
3. A 10 per cent relative reduction in prevalence of insufficient physical activity.
4. A 10 per cent relative reduction in mean population intake of salt/sodium.
5. A 30 per cent relative reduction in prevalence of current tobacco use in persons aged 15+ years.

6. A 25 per cent relative reduction in prevalence of raised blood pressure.

7. Halt the rise of diabetes and obesity.

8. At least 50 per cent of eligible people receive drug therapy and counseling (including glycaemic control) to prevent heart attacks and strokes.

9. An 80 per cent availability of the affordable basic technology and essential medicines including generics, required to treat major NCDs in both public and private facilities.

UN General Assembly's Commitment to Fight Non-communicable Diseases

- UN General Assembly adopt of the political declaration on the prevention and control of noncommunicable diseases.
- First time, global leaders have reached consensus in the General Assembly on concrete actions to tackle these diseases.
- Governments agreed on the need for global targets to monitor these diseases and their risk factors like tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol.

Thank you