Community 432 Medicine

25 OVERVIEW OF NON- COMMUNICABLE DISEASE

Objectives

By the end of the session the students should be able to define and understand:

1. The epidemiology of non-communicable diseases
2. Risk factors for non-communicable diseases
3. Overall framework and common preventive strategies against non-communicable diseases

Done By:
Arwa Almashaan

Reviewed By:
Rozan Murshid

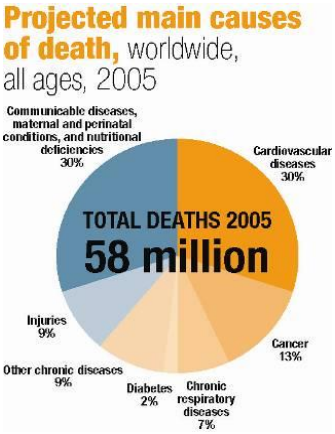
جامعة الملك سعود
King Saud University

Non communicable diseases

Introduction:

35 000 000 people died from **chronic diseases** in 2005 = this means that **60%** of all deaths are due to chronic diseases.
The majority of deaths worldwide for all ages are due to **chronic diseases**. Major causes of mortality:

- Cardiovascular diseases (mainly heart disease and stroke) are responsible for 30% of all deaths.
- Cancer
- Chronic respiratory diseases, and
- Diabetes. The contribution of diabetes is underestimated because although people may live for years with diabetes, their deaths are usually recorded as being caused by **heart disease or kidney failure**.



The projected 35 million death from **chronic diseases** is **double** the number of deaths from all **infectious diseases** (including HIV/AIDS, tuberculosis, and malaria), **maternal and perinatal conditions, and nutritional deficiencies combined**.

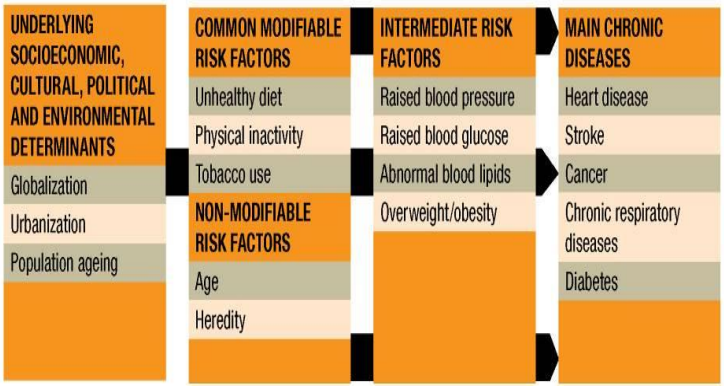
Definition-Non-communicable Diseases

Non-communicable diseases are all impairments or deviations from the normal, which have **one or more** of the following characteristics;

- Are **permanent**
- Leave residual **disability**
- Caused by **non-reversible** pathological **alterations**
- Require special **training** of the patient for **rehabilitation** (e.g. stroke, DM complications)
- May be expected to require a long term **supervision** (e.g DM, HTN)

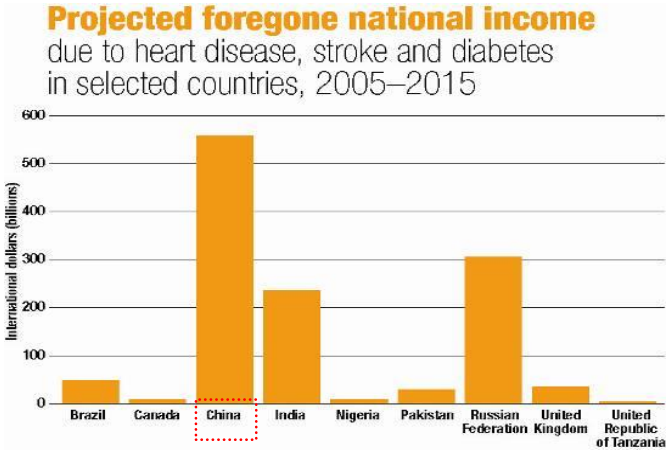
Causes of Non-communicable diseases

Notes: from the figure you can see that the main chronic diseases have intermediate risk factors and common risk factors e.g. high fat diet could lead to abnormal blood lipids which may predispose to Heart disease. Globalization e.g. as we become as the west-coteries and eat fast food. Urbanization no more fresh air, office work …etc. Population aging because the medical care become advanced. As we have older population that's means we have more chronic diseases Non-CD. MCQ's relation.



The economic impact

- The problem has serious impact. The burden of chronic disease:
  - ✓ has major **adverse effects on the quality of life** of affected individuals;
  - ✓ causes **premature death**;
  - ✓ Creates large **adverse** – and underappreciated – **economic** effects on families, communities and societies in general.



- 80% of chronic disease deaths occur in **low & middle** income countries.
- Chronic diseases are concentrated among the **poor more than wealthy people** they don't have the ability of pay for screening and diagnosis.
- Almost **half** of chronic diseases occur **prematurely**, in people **under 70 years** of age. One quarter of all chronic disease **deaths** occur in people **under 60 years** of age.
- Chronic diseases affect **men and women almost equally**
- **80%** of premature heart disease, stroke and type 2 diabetes is **preventable**, **40%** of **cancer** is preventable (the major causes of chronic diseases are known, and if these risk factors were eliminated chronic diseases could be prevented) For cancer prevention: screening, vaccination, avoid the risk factor e.g. smoking,
- A full range of chronic disease interventions are very cost-effective for all regions of the world, including sub-Saharan Africa. Many of these solutions are also inexpensive to implement. **(prevent and control** complications is **not** expensive as its treatment**)**

Non-communicable Diseases

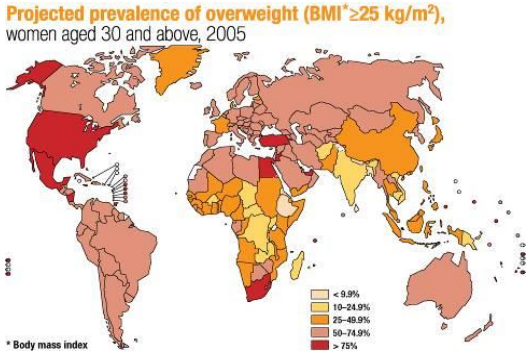
- Coronary Heart Diseases
- Hypertensive Heart Diseases
- Cancer
- Stroke
- Diabetes
- Chronic Obstructive diseases
- Peptic Ulcer
- Blindness
- Mental Retardation
- Schizophrenia
- Arthritis

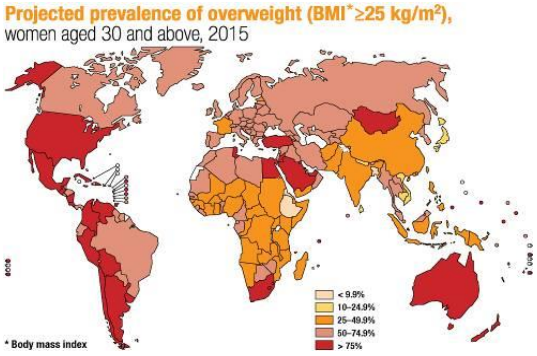
Risk factors

Modifiable	Non-Modifiable
Cigarette smoking	Age
High Blood pressure	Sex
Elevated serum Cholesterol	Family Hx
Diabetes	Genetic factors
Life style changes (dietary patterns, physical activity)	Personality
Stress factors	Race
Alcohol abuse	

Risks are increasing:

From 2005 – 2015 prevalence of obesity increases in many countries including middle east countries.





Prevention

"**Focus on Integrated approach**" Community Trials-Primary prevention;

- Framingham study
- The Standford-Three-Community study
- The North Kerelia project
- The Multiple risk factor intervention trial (MRFIT)

(**Integrated approach** If you modify one disease risk factors you can control other Non-communicable diseases)

The objectives of Integrated Chronic Disease Prevention and Control Program are:

- To strengthen **prevention and control** of chronic non-communicable diseases by tackling the **major risk factors**, focusing on WHO's four priority non-communicable diseases - cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, and underlying determinants of health.
- To reduce premature **mortality and morbidity**.
- To **improve quality of life**, with particular focus on <u>developing</u> countries.

Primary prevention		**Secondary prevention**	**Tertiary prevention**
Population strategy	High Risk approach		
• Dietary Changes • Blood pressure control • Physical activity (weight reduction) - specially children • Behavioral change – reduction of stress and Smoking cessation • Self-care • Health education	**Identify Risk:** Identify high risk people and families eg those who smoke, and have high serum cholesterol **Specific Advice:** helping them to stop smoking and exercise and diet control ect	• Continuation of primary care • Early case detection and **treatment** eg: CHD -Cessation of smoking -Reduction of serum cholesterol level • Compliance • **Screening for complication.**	• Rehabilitation.

Application of the frame work

Chronic Heart Disease (CHD)

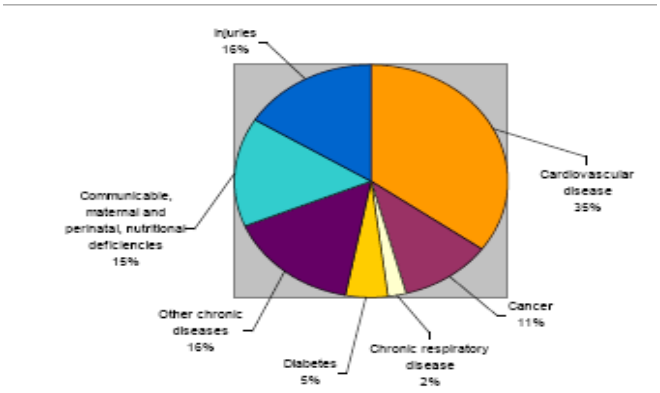
Definition:

Impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart.

- Angina on effort
- Myocardial infraction (MI)
- Irregularities of the heart
- Cardiac failure
- Sudden death

Risk Factors: in Saudi Arabia

- **Smoking**
- **HTN**
- **Dyslipidemia**
- **DM**
- Genetic predisposing
- Physical inactivity
- Hormones men > female / after menopause equalized
- Type A personality
- Oral contraceptives-higher diastolic and systolic BP



Facts:

- In Saudi Arabia, chronic diseases accounted for 69% of all deaths in 2002 (see chart, right).
  - Total deaths in Saudi Arabia, 2002 = 97,000.
  - Total deaths related to chronic disease in Saudi Arabia, 2002 = 67,000.

Prevention:

- Population strategy
- High risk strategy
- Individual strategy

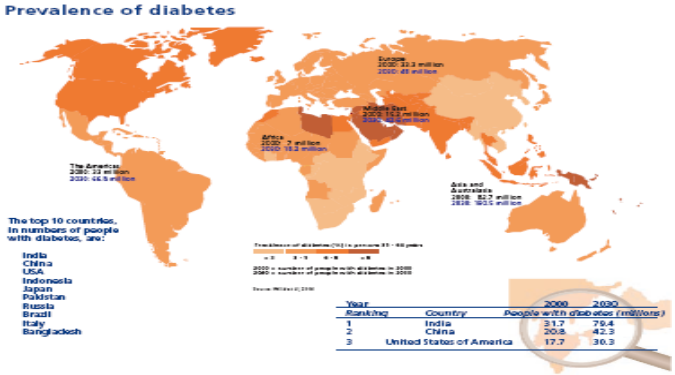
Diabetes Mellitus

Types:

- **Type 1 diabetes** :(previously known as insulin-dependent or childhood-onset) is characterized by a lack of insulin production. Without daily administration of insulin, Type 1 diabetes is rapidly fatal
- **Type 2 diabetes:** (formerly called non-insulin-dependent or adult-onset) results from the body's ineffective use of insulin
- **Gestational diabetes:** is hyperglycemia which is first recognized during pregnancy

Risk Factors:

- Familial tendency
- Obesity
- Diabetogenic drug
- Insanitary environment



Complications:

Amputation, nephropathy, retinopathy.

Prevention

Primary	Secondary	Tertiary
• screening of **high risk group** • Ideal body weight and nutrition • Exercise	• Moderate blood glucose control and compliance • Foot care • Screening for **retinopathy** (which causes blindness); • Blood lipid control (to regulate cholesterol levels); • Screening for early signs of diabetes-related kidney disease. Screening here for complication	• Rehabilitation if there is complication as amputation

The Global Goal

- A 2% annual reduction in chronic disease death rates worldwide, per year, over the next 10 years.
- The scientific knowledge to achieve this goal already exists.
- Pursuing this goal would result in 36 million chronic disease deaths averted by 2015.

The stepwise framework (we will talk about it later)

- Chronic diseases can be prevented and controlled using available knowledge.
- The stepwise framework offers a flexible and practical public health approach **to assist ministries of health in balancing diverse needs and priorities while implementing evidence-based interventions**.
- Comprehensive and integrated action is required.
- Comprehensive action requires combining population-wide approaches that seek to reduce the risks throughout the entire population with strategies that target individuals at high risk. Even a small shift in the average population levels of several risk factors can lead to a large reduction in the burden of chronic disease.

- Integrated prevention and control strategies are most effective. Integrated approaches focus on the common risk factors: unhealthy diet, physical inactivity and tobacco use. They deal with a number of related diseases such as heart disease, stroke and diabetes, at the same time.
- Comprehensive and integrated action is the means to prevent and control chronic diseases