Epidemiology of Non-Communicable diseases
Epidemiology of Non Communicable diseases

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Outline

• What is non-communicable diseases

• Types of Non-Communicable diseases

• Diagnosis of Non-Communicable diseases

• Prevention and control of Non-communicable diseases
Introduction

• Also called chronic disease epidemiology
• Assuming increasing importance in both developed and developing countries.
• There is an epidemiological transition from communicable diseases to predominantly NCDs in Nigeria.
• NCDs are increasingly becoming an important contributor to the national diseases burden and therefore a major public health concern.
NCDs: Definition

- An impairment of bodily structure and function that necessitates a modification of the patient’s normal life, and has persisted over an extended period of time.
NCDs: Definition

Various definitions

• Comprise all impairments or deviations from normal, which have one or more of the following characteristics:
  – Are permanent
  – Leave residual disability
  – Are caused by non-reversible pathological alterations
  – Require special training of the patient for rehabilitation
  – May be expected to require a long period of supervision, observation or care

Commission on chronic illness in USA, 1956
• NCDs are leading cause of functionary impairment and death worldwide.
• NCDs account for 43% of global disease burden; 60% of deaths
• Projection: By 2020, NCDs will account for 60% disease burden and 73% of deaths
• Among the top ten causes of morbidity and mortality in Nigeria.
• Imposes heavy economic burden on individuals, societies and the health system.
NCDs are assuming greater importance because –

• Control of communicable diseases - malaria, diarrhoea dxs, respiratory tract infections etc

• Urbanization and industrialization

• Life style and behaviour

• Increased life expectancy - more people living to old age

• Modern health services
Examples of Non-Communicable diseases

- Cardiovascular diseases
- Cancers
- Diabetics
- Injuries
Characteristics

• Absence of known etiological agent –
• Multifactorial causation – absence of one to one cause but “risk factors”.
  Risk factors- factors that are positively associated with the risk of development of a disease but are not sufficient to cause the disease
• Long latency period. Period between 1st exposure to suspected factor and eventual development of disease
Hence difficult to link factor & dx, difficult to prevent.

4. Indefinite onset- Slow.
Risk factors of NCD

Modifiable and non-modifiable factors
Modifiable risk factors of NCD

• Lifestyle
  – Cigarette smoking
  – Excessive alcohol
  – Dietary patterns
  – Physical inactivity

• Environmental
  – Occupational hazards
  – Radiation
  – Other pollutants
• Failure or inability to get preventive health services such as:
  – Screening
  – Early treatment
• Stress factors
• Recently identified aetiological factors
  – Viral carcinogenesis
• HPV, Epstein barr virus, HIV,
Non-modifiable risk factors

• Family history

• Advancing age
Diagnosis of NCD
Diagnosis of NCDs

1. Biochemical testing e.g. diabetes, cholesterol

2. Blood tests for markers

3. Radiologic tests, X-ray, Ultrasound, MRI, CAT scan, PET scan

4. Biopsies

5. Genetic testing
Prevention of NCDs

• Multiple Interventions

Primordial - Anti-smoking, alcohol, drug abuse laws and legislation.

Primary - Health promotion, modification of risk factors e.g. physical activity, relaxation & rest, good nutrition, emotional stability-avoidance of stress, health education, avoidance of exposure to harmful substances

Secondary - Screening, case finding, prompt Rx

Tertiary - Limit disability and rehabilitation (medical, social, vocational & economic)
Epidemiology of RTA
What is the problem?

- RTA is an health related event that with an undesirable outcome, injury to the body, loss of life, damage to property and interruption in business activities.
- It involves the vehicles, pedestrian, passenger, drivers and even animals.
- It has devastating effect on the physical structure of the individual, family life, economic and developmental well being.
What is the problem?

• A lot of talented individuals are lost through RTA
• It has created anxiety state in the mind of Nigerians.
Magnitude: Place, Person and Time distribution-

Place:
- **World wide**
- Endemic and epidemic patterns in Nigeria
- 700,000 lost yearly to RTA worldwide.

**Person**: Age: young drivers (15-24yrs), Male>Female.

**Time**: Weekends, Nights, Festive periods
Determinants

**Agent:** Vehicle: Poor maintenance: tyres, brake, steering, horn, overloading

**Host:**
- low education
- Medical condition: heart attack, impaired vision, fatigue, epilepsy
- Behaviour: smoking, alcohol
- Risk taking: overspeeding, non-use of protective devices, violation of traffic signs e.t.c.
Determinants factors

Environment:

• Road:
  • Narrow road
  • Pot holes
  • Poor lighting
• Weather: Bad weather.
Prevention and Control

Directed at host:

- Health education: to drivers, pedestrian and passengers on road signs.
- Lifestyle modification: stop smoking, alcohol and other drugs while driving.
- Imposing penalties for smokers and drug abusers
- Use of preventive measures while driving such as seat belt

Agent:

- Vehicle, design and maintenance
Prevention and Control

Environment:

• Road maintenance (FEPA)
• Law enforcement agencies: FRSC, POLICE, e.t.c.
• Enforcement of driving test, medical fitness, vehicular inspection e.t.c
• Conducting Researches on RTA and its determinants
• Traffic rule and regulations
DIABETICS
Diabetics

• Group of metabolic diseases in which there is **high blood sugar** over a prolonged period.

• Fasting blood sugar; **2.2 – 6.1 mmol/l** and Random blood sugar is **7.8 -11.1 mmol/l**.

• It produces symptoms of frequent urination, increased thirst and increased hunger.

• Long term complications can affect the eyes, kidney, heart or cause foot ulcer
TYPES OF DIABETICS

- **Type 1 DM** results from the body's failure to produce enough insulin. This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes". Linked to HLA genotypes. Onset triggered by viral infections—Coxsackie B4 virus virus or diet.

- **Type 2 DM** cells fail to respond to insulin properly as "non insulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes". It is linked to excessive body weight and not enough exercise.

- **Gestational diabetes**, is the third main form and occurs when pregnant women without a previous history of diabetes develop a high blood glucose level.
SPECIFIC Management

- Use of insulin injection
- Use of anti-diabetic drugs
- Dietary and lifestyle modification
- Regular medical checkup
HYPERTENSION
HYPERTENSION

- Most important contributor to CVD sickness and death
- Affects 1 billion people worldwide
- Approx. 7.1 million deaths per year attributable to HT
- 95% cases essential while 20% cases secondary to renal/endocrine diseases
- Uncontrolled Blood Pressure can lead to stroke, Congestive Heart failure, Renal failure, retinopathy e.t.c.....
# Blood Pressure Classification

<table>
<thead>
<tr>
<th>BLOOD PRESSURE CLASSIFICATION</th>
<th>SYSTOLIC BLOOD PRESSURE</th>
<th>DIASTOLIC BLOOD PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>&lt; 120mmHg</td>
<td>&lt; 80 mmHg</td>
</tr>
<tr>
<td>PRE HYPERTENSION</td>
<td>120 -139mmHg</td>
<td>80-89 mmHg</td>
</tr>
<tr>
<td>STAGE 1</td>
<td>140 -159mmHg</td>
<td>90 -99 mmHg</td>
</tr>
<tr>
<td>STAGE 2</td>
<td>&gt; 160mmHg</td>
<td>&gt; 100mmHg</td>
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</table>
Cancer
What is Cancer cell?
What is cancer?

- Cancer occurs when cells lose its normal behaviour due to DNA damage.

- DNA carries software that regulates the behaviour of the cell.

- Cells begin to multiply abnormally.

- Cancer progresses from one stage to the other. (Stage 0-4)

- It is named according to body parts in which it originated from - Breast, Cervix, Endometrial e.t.c.
Types of cancers
Agents linked to Cancer

DNA is damaged by the following factors:

• Tobacco – Lung Cancer

• Alcohol – Liver Cancer

• Wrong food choices – chemicals/Preservatives

• Infections – Human Papilloma Virus linked to Cervical Cancer
Agent linked to cancers

- Occupational hazards - Asbestos
- Genetic factor - Inheritance from mother, father account for 3%
- Ionizing radiation - GSM, Chest x-ray e.t.c
- Sedentary lifestyle - No exercise
Symptoms of cancer

Depend on part affected.....
Symptoms of breast cancer

- Breast Changes:
- Breast lump.
- Redness and thickening of the skin on the breast.
- Rash that persists for weeks
- Changes in the nipple
- Discharge when you are not breastfeeding, bloody
Symptoms of Cervical Cancer

Asymptomatic at early stages.

• Abnormal vaginal bleeding (during sex, after menopause, in between menses)

• Vaginal discharge with an unpleasant odour.

• Pain during sex

• Pelvic or back pain
Diagnosis of Cervical Cancer

Pap smear: cells are scraped from the cervix and examined under a microscope to check for disease or other problems.

Cervix viewed through speculum with patient in lithotomy position
Thank you