UNIVERSITY COLLEGE HOSPITAL

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EPIDEMIOLOGY AND DISEASES CONTROL

300LEVEL

(1) **Define and epidemiology and explain it's main objectives.**

Epidemiology is the study of distribution and determinant of health related state or event in a specified population and the application of this study to the control of health problems

OR

Epidemiology is the study of the distribution, Patterns and causes of health and disease condition in a defined population to control and prevent diseases.

ii) The main objectives are;

a. To control and prevent disease by informing public health Policy, Intervention and health promotion strategy such as Immunization, hand hygiene etc.

b.To identify the causes of disease by investigating the factors that cause disease e.g outbreak of cholera caused by poor water supply or poor hygiene.

c.To predict the occurrence of disease by estimating risk and forecasting health trends.

d. To describe the health status of population by identifying patterns and frequencies of disease.

(2) **Dmiology providing one examifferentiate between Descriptive and Analytical epideple each**

DESCRIPTIVE EPIDEMIOLOGY : This focus on what (type of disease), who(person or group), where (place) and when (time). It Involves describing disease frequency, distribution and determinant in population.

Example: It Examines case series by means of Person, Place and time of first 100 Patients with SARS.

ANALYTICAL EPIDEMIOLOGY :This deals with why and how disease occur i.e the cause risk factors and mode of transmission of the disease.

Example: It Measures risk factors for SARS such as Contact with animals and infected person.

(3) **Discuss the components of the epidemiologic triangle and how they interact in the spread of an infectious disease.**

The component of epidemiological triangle are external agent, a susceptible host and an environment that brings the host and agent together

Agent: This referred to an infectious microorganism or pathogen: a virus,

bacterium, parasite or Other microbe. The agent must be present for disease

to occur, however, presence of that agent along is not always sufficient to cause disease and different factors influence whether exposure to an organism will result in disease

Including the organism's pathogenicity (ability to cause disease) and dose.

Host: This refers to the human who can get the disease. A variety of factors intrinsic to the host sometimes called risk factors can influence and individual's exposure, susceptibility on response to a causative agent Opportunities for exposure are often influenced by behaviours Such as sexual practices, hygiene and other Personal choices as well as by age and sex

Susceptibility and response to an agent are influenced by factors such as genetic composition, nutritional and immunologic status, anatomic structure, presence of

disease or medication and psychological make up.

Environment: This refers to extrinsic factors that affect the agent and the Opportunity for exposure. Environmental factors in physical factors such as geology and climate, biologic factors such as insect and animals that transmit the agent and socio economic factors such as crowding, sanitation and availability of health services

Example: Mycobacterium tuberculosis is an agent of Tuberculosis and It spreads through the air (Environment) and the man is the host.

(4)**Explain the concept of determinants in epidemiology and give two examples of biological and environmental determinant.**

Determinants are factors or exposures that increase or decrease the risk Of disease.

Example of Biological determinant is age and sex

For example: Older adults are biologically prone to being in poorer health than adolescents due to the physical and Cognitive effects of aging.

Environmental determinant include air pollution, and extreme temperatures.

(5)**Describe three levels of prevention in public health and provide a real life example each.**

Three levels of prevention

1. **Primary Prevention.** This prevents a disorder from developing. It Includes vaccinations, Counselling to change high-risk behaviour and Sometimes chemo prevention.

E.g. Vaccination of Children of 9 months to 14years against Measles and Rubella Virus in Oyo State to confirm immunity.

Health educating mothers on personal and environmental hygiene, nutrition and family planning.

2. **Secondary prevention**. This helps to detect and treat disease early often before symptoms are present thus minimizing, serious consequences

Example of secondary prevention include the following:

Screening programs, such as mammography to detect breast cancer and dual X-ray absorptionetry (DIA) to detect Osteoporosis.

Tracking down sex partners of a person diagnosed with sexually transmitted infection (contact tracing) and if necessary treating these people to minimize spread of disease.

Tertiary prevention: An existing usually Chronic disease is managed to prevent complications or further damaged.

E.g For people with diabetes, Control of blood sugar, excellent Skin care and frequent exercise to prevent heart and blood vessel disorders.

Providing supportive and rehabilitative services to prevent deterioration and maximize quality of life such as rehabilitation from injuries, heart attack or stroke.

(6)**How did John Snow contribute to the development of modern epidemiology?**

Describe the method he used during the cholera outbreak.

John Snow Contributed to modern epidemiology by tracing the source of a Cholera out break in London's Soho Which he identified as particular Public waterpump. Snow's findings inspired fundamental changes in the Water and waste systems of London,

Which led to similar changes in other cities and a significant improvement in general public health around the world.

The method snow used were

1. He conducted thorough investigations by interviewing affected families,

2. Colllecting detailed demographic information, and examining water Sources and he used detailed maps to correlate Cholera cases with specific water sources.

(7)Compare and contrast incidence and prevalence. Why is it important to understand both when studying a disease like Diabetes.

Incidence: This is the number of new cases in a population over specific time.

Prevalence: It is the total number of existing Cases (new +old coses) at a given time.

It is important to study incidence and prevalence when studying disease like diabetes because It helps to inform public health strategies and what can be done to improve health outcomes.

(8) What are the common types of epidemiological study designs and how does a cohort study differ from a case Control study.

The common types of epidemiology design are's

1.Cohort Studies.

ii Randomized Controlled trials

iii.Case-Control Studies

Iv. Cross- sectional Studies

Case Control Study

1) It can study only one disease

2) It is appropriate for rare diseases

3) It is relatively Cheapp

4) Study population relatively small

5) Quick result

6) Usually retrospective i.e proceeds from effect to cause

Cohort Study

1) It can study more than one disease.

2) It is appropriate for common disease.

3) It is often costly

4) Study population relative large

5) Often long waiting time.

6) Usually prospective i.e proceeds From cause to effect.

(9) **Define and differentiate between Relative Risk (RR) and Odd Ratio (OR) including when each is typically used.**

Relative Risk (RR) is the ratio of the probability of an event occuring with an exposure versus the probability of the event occuring without the exposure.

Relative risk is used to present the result of randomized controlled trials.

Odd ratio (OR) is a measure of association between an exposure and an outcome.

Odd ratio is most Commonly used in case Control Stu**dies.**

(10) Explain the role of epidemiological surveillance in managing public health. How can it help?

The role of epidemiological surveillance Include; identifying patients and their contact for treatment and intervention of infectious diseases:

ii. Detecting epidemics, health problems and changes in health behaviours.

During emerging disease, epidemiological surveillance helps to detect, monitor and respond to outbreaks before they escalate into global Crisis.