Name: ADEOYE TIWALADE JOY
Level: 300l
Course: Epidemiology and & communicable diseases

TEST

1. Define epidemiology and explain its main objectives?

Epidemiology is defined as the scientific study of the distribution and determinate of health related state or event in a specific population and the application of this study to control health problems

The main objectives are:

• To identify the causes of diseases
• To determine the extent of disease
• To study the progression of the disease
• To develop public health policy
•To evaluate prevention and therapeutic measures for a disease condition.

2. **Differentiate between descriptive and analytical epidemiology,providing one example of each?**

Descriptive epidemiology describes the 'what','who',where and when' of a disease I.e mapping the geographic distribution of cholera outbreak to inform resources allocation & analyzing the demographic (age, sex & occupation)

WHILE

Analytical epidemiology investigate the 'why, how' by testing hypothesis about risk factors and causes. I.e the Framingham heart study which followed a group of people to identify risk factors for cardiovascular disease.

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

The component of epidemiology are:

• The agent- this is the causes of disease e.g virus, bacteria, Protozoa
• The host - this is the organism susceptible to the disease
• The environment- this includes all the external factors that promotes disease transmission.

* They interact in the spread of infectious diseases through epidemiological triad & the chain of infection.

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

In epidemiology,the concept of a determinants is any factor that influences the frequency of a disease or health event in a population.

Examples of biological determinants are: genetic,age .

Examples of environmental determinants are: noise pollution,weather events.

5. Describe the three levels of prevention in public health and provide a real-life example for each.

The 3 levels of prevention in public health are

* Primary levels- this includes measures like vaccination and health education to stop diseases from happening in the first place
* Secondary level - this focuses on early detection through screening to intervene before symptoms are severe eg regular checkup to catch issues early
* Tertiary level- this involves managing an existing illness to prevent complications, disability,and improve quality of life e.g rehabilitation programs after a stroke , medications to prevent a second heart attack**.**

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 applying a systematic evidence-based approach to a cholera outbreak in London in 1854, which established the foundation for modern public health
He used a shoe-leather epidemiology which involves physically going to the affected area to gather information.

7. **Compare and contrast incidence and prevalence. Why is it important to understand both when studying a disease like diabetes?**

Incidence measure new cases of conditions during a specific time period,like the rate of new covid-19 infections each week.

WHILE

Prevalence measures the total existing cases (both new and old) at a time or over an interval

* it's important because they measure disease prevention, planning interventions and allocation resources.

8. **What are the common types of epidemiology study designs and how does a cohort study differ from a case control study**

The common types of epidemiology study designs are :

• Cross sectional: Measures both exposure and the outcome at a single point in time,providing a snapshot of the population. It's a type of observational study commonly used to look at factors associated with disease or outcomes.
• case control: starts with people who have the outcome (cases) and a similar group without the outcome (control) then look backward to compare past exposure.
• cohort: identifies groups based based on exposure status and follows them forward in time to see who develops the outcome.
• Ecological study: It examines the relationship between a risk factor and a disease at the population level.

* The differences between case control and cohort study is:

A case control study starts with the outcome & look back of finding the exposures marking it deal for rare diseases.

WHILE

A cohort study starts with the exposure and follow participants forward to see who develops the outcome, which is better for studying rare exposures and can provide stronger evidence of casualty.

9. **Define and differentiate between relative risk and odd ratio including when each is typically used**

Relative risk is defined as a ratio of the probability of an even occurring in the non-exposed group WHILE

Odd ratio is a measure of the strength of association between an exposure and an event,calculated by dividing the odds of the event In an exposed group by the odds of the event in a non-exposed group.

DIFFERENCE BETWEEN THEM:

-Relative risk (RR) compares the probability of an event in two (2) groups WHILE Odd ratio(OR) compares the odds of an event.

10. **Explain the role of epidemiological surveillance in managing public healt**h

The role of epidemiology surveillance in managing public health is crucial for managing public health by acting as an early warning system for outbreaks, building interventions,and evaluating public health programs. It involves the continuous collection & analysis of health data to identify when and where health problems are occurring and who is affected,enabling prompt and targeted responses to public health threats.

It can help during emerging epidemiology by enabling the early detection of outbreak, allowing public health officials to promptly implement control measures.