**LEVEL 5, 2019/20**

**PRACTICE QUESTIONS IN EPIDEMIOLOGY**

**Instruction: Read 2nd Year Epi. Notes**

Work in pairs during Friday, 1st Nov. 201 Epi Class.

1. **DEFINITION AND USES OF EPIDEMIOLOGY**
2. Define epidemiology and identify the important elements in its definition, Give an example for each.
3. Epidemiology has several uses. List any FIVE of them.
4. Identify the level of disease prevention for the following:
   1. Screening women for breast cancer.
   2. Assisting a cardiac patient to lose weight.
   3. Provision of quality water to the community.
   4. Taking a sick person to hospital for treatment.
   5. Rehabilitation of leprosy patients.
   6. Smoking cessation and vaccination.
5. What is an Epidemiologic triad? Construct an **epidemiologic triad** of a disease/condition of your choice.

**II APPLICATION OF EPIDEMIOLOGY (MEASURES)**

1. Epidemiology has many uses, one of them being to identify the causes or determinants of diseases and other health-related problems as illustrated by the following example.

*An outbreak of gastritis occurred on a cruise ship.  The data in the following table were obtained shortly after the outbreak, from a questionnaire completed by everyone on board the ship.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **People W**h**o Ate Food** | | **People W**h**o Did Not Eat** | |
| Food | Sick | Well | Sick | Well |
| Herring | 200 | 800 | 100 | 900 |
| Chicken | 650 | 350 | 100 | 900 |
| Spinach | 200 | 800 | 500 | 500 |
| Oysters | 300 | 700 | 400 | 600 |
| Chocolate mousse | 600 | 400 | 450 | 550 |

1. Calculate the rates of becoming sick for people who ate and those who did not eat each of the listed food items. What name is given to the calculated rates?
2. Calculate and interpret the measures of strength of association of developing gastritis from various foods consumed.
3. Which food item is most likely to have caused gastritis? Give reason for your response.
4. With examples, differentiate the following measures:
   1. Prevalence and incidence.
   2. Cumulative incidence and incidence density.
   3. Attack rate and secondary attack rate.
   4. Relative risk and odds ratio.
5. What is the relationship between Incidence and Prevalence for a stable disease in the population?

**III STUDY DESIGNS**

1. Using examples, differentiate between the following:
   1. Observational and experimental study designs.
   2. Analytic and descriptive studies.
2. Illustrate diagrammatically the difference between case-control and analytic cohort study designs.
3. In a study of 500 cases of a disease and 500 controls, the suspected etiological factor is found in 400 cases and 100 controls.
   1. Identify the above study design.
   2. What is the absolute risk of disease in people with the factor?
   3. List the advantages and disadvantages of the above study.
4. A study was conducted to determine if there was a relationship between smoking and disease X. A total of 288 smokers and 312 non-smokers were identified and then followed-up. At the end of the follow-up period, 112 and 88 of the smokers and non-smokers, respectively, had developed the disease.
   1. Identify the above study design.
5. List the advantages and disadvantages of the above study design.
6. Compare the appropriate measures of disease occurrence in the two groups.
7. Calculate and interpret the measures of association for the above study.
8. Jacob conducted to determine the relationship between lifestyles and diabetes in a certain County. He selected a random sample from the population. He then collected information on whether or not they had diabetes. At the same time he obtained information on their lifestyles.
   1. Which study design was this? Give reason.
   2. Which measure of disease occurrence can be determined?
   3. Give advantage(s) and disadvantage(s) of the above study.

**IV. SCREENING**

1. Presented in the table below are the results of a screening program conducted to evaluate a new screening test for Lyme disease.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **With Disease** | **Without disease** |
| **TEST RESULT** | Positive | 35 | 24 |
| Negative | 6 | 1924 |

1. Calculate and interpret the following:
   1. Measures of validity.
   2. Predictive values.
2. Comment on the performance of the new test for Lyme.