

PART I

All questions are compulsory.

Please indicate whether these statements are True (T) or False (F). Encircle the one Right answer.

1. T/F Incidence Rate is a measure of Absolute Risk.
2. T/F The proportional mortality rate is used to measure the proportion of disease specific mortality in the hospital
3. T/F Person years of treatment may be used as denominator to measure treatment effectiveness.
4. T/F A diagnostic test could be reliable but may not be valid.
5. T/F Reliability is a measure of precision.
6. T/F Improper diagnostic criteria will lead to Misclassification Bias and wrong estimates risk of disease.
7. T/F The sensitivity of diagnostic test is the proportion of people who have the disease classified correctly as having the disease by the screening test.
8. T/F Increase in specificity of a Diagnostic test increases PPV.
9. T/F The Risk factors of disease may also be Prognostic factors.
10. T/F Prognosis of a disease can be predicted by survival analysis.
11. T/F Survival Rates measure treatment effectiveness.
12. T/F In Randomized Clinical Trial, the study population is composed of study subjects randomly assigned as treatment and placebo groups.
13. T/F In Randomized Control Trials, comparability of the characteristics of the study and the placebo group is essential to control the effect of confounding factors.
14. T/F A relative risk greater than 1 occurs when the risk in the unexposed group is greater than in the exposed group.
15. T/F Relative Risk and Odds Ratio are measures of risk to determine the cause and effect relationship.
16. T/F Type II Error occurs when in the reality the two groups do not differ and your study results statistically significant difference in the study and control groups
17. T/F Power of study sample probability of rejecting Null Hypothesis if it is not true.
18. T/F Hospital based surveillance is necessary for understanding the patterns and trends nosocomial infections.
19. T/F Prevalence of nosocomial infections is a function of incidence and duration of the disease.
20. T/F High incidence of nosocomial infections would reduce hospital efficiency



PART II

All questions are compulsory.

The Part II of the question paper consists of Multiple Choice Questions (MCQ). There is only one right answer. Encircle one right answer for each question.

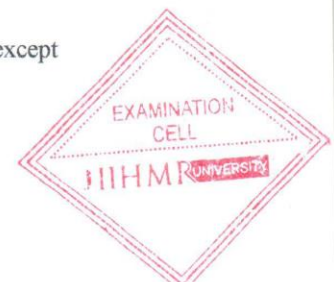
Questions 1, 2, and 3

Diagnostic strategies are important for disease management. A diagnostic test for cervical cancer was administered to 1000 women with biopsy-proven cervical cancer and to 1000 women without cervical cancer. The test was positive in 800 biopsy proven cases, and was positive among 50 women without cervical.

1. The sensitivity of the diagnostic test is:
 - (a) 80%
 - (b) 60%
 - (c) 25%
 - (d) 30%
2. The specificity of the diagnostic test is:
 - (a) 95%
 - (b) 80%
 - (c) 25%
 - (d) 30%
3. The Predictive Value for positive diagnostic test is:
 - a) 94%
 - b) 90%
 - c) 82.5%
 - d) 70%
4. Reliability of a Diagnostic Test indicates:
 - (a) Accuracy
 - (b) Precision
 - (c) Statistical Significance
 - (d) Central Tendency
5. Reliability of a Diagnostic Test is affected by all, except:
 - (a) Instruments error
 - (b) Lack of standard
 - (c) Inter-observer variation
 - (d) Intra-observer variations



6. When a physician or nurse measures patient's heart rate by feeling pulse every 10 seconds each time she comes to hospital. The heart rate differ visit to visit because all, except:
 - a) The patient has different pulse rate different times
 - b) The instrument may misrepresent the true pulse by chance because of brief period of observation
 - c) Physician and nurse use different technique
 - d) Pulse rate varies among patients
 - e) An effective treatment was given between the visits
7. "Abnormal" is commonly defined by all of the following except:
 - a) The level at which treatment has been shown to be effective
 - b) The level at which the death rate is increased
 - c) Statistically unusual values
 - d) Values that do not correspond to normal distribution
 - e) The level at which there is increased risk of symptoms
8. A patient with acute myocardial infarction was admitted in your hospital. Following are the prognostic factors for poor outcomes, except;
 - a) Severity of illness
 - b) Time elapsed between attack and hospitalization
 - c) Absence of history of smoking
 - d) Arrhythmia
9. All are measures of Treatment Effectiveness, except;
 - a) 5-Year Survival Rate
 - b) Case Fatality Rate
 - c) Mortality Rate
 - d) Absolute Risk
10. A disease should be included for surveillance in hospital if it has
 - a) Potential of outbreak of epidemic proportion
 - b) High mortality
 - c) A effective control measure is available
 - d) All of the above
11. Evaluation of Effectiveness of a surveillance system in hospitals includes all, except
 - a) Timely reporting
 - b) Zero reporting
 - c) Following the standard protocol for sample collection
 - d) Measuring Incidence Rate of disease
 - e) All of the above
12. Outbreak may be suspected to occur in a hospital when following are present, except
 - a) Sudden increase in work load
 - b) Large number of cases
 - c) Disease or infection is regularly present the hospital
 - d) Cases are beyond threshold

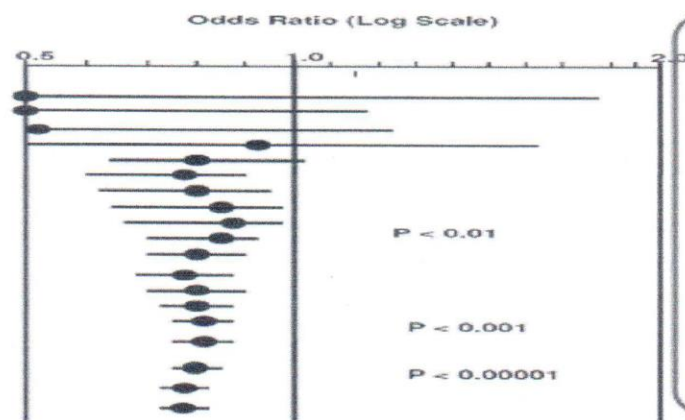


13. Risk of Nosocomial Infections in hospitals increases by all, except:
 - a) Use of Invasive devices
 - b) Increased number of new admissions
 - c) Immuno-compromised patient
 - d) Improper Hospital environment
14. Which is the commonest nosocomial infection in the hospitals
 - a) Pneumonia
 - b) Urinary Tract Infections
 - c) Surgical wound infections
 - d) Gastrointestinal infections
15. An outbreak can occur if the hospital has
 - a) Health staff suffer from similar infection
 - b) If patients of a similar disease come to the hospital
 - c) If the laboratory test do not show hospital induced bacteria
 - d) All of the above
 - e) None of the above
16. The clinical decision making is based on weight of the evidence. All statements about Systematic Reviews are true, except:
 - a) Systematic reviews are analytical
 - b) Systematic reviews use a pooled odds ratio or relative risk estimates.
 - c) Systematic reviews reduce bias in the results.
 - d) Systematic reviews take longer time than narrative reviews
17. All criteria for assessing the quality of a study for inclusion in Systematic Reviews are correct, except?
 - a) Studies should have large sample size.
 - b) The results should be positive only.
 - c) It should have fewer biases and should be precise.
 - d) The results should be both statistically and clinically important.
18. What is the approach when reviewers review the quality of a study before they make recommendations?
 - a) Through a screening approach.
 - b) Through an assessment criteria.
 - c) Through a GRADE approach
 - d) Through an expert panel.
 - e) Through popular votes.
19. Which organization exclusively conducts systematic reviews in health care?
 - a) World Health Organization.
 - b) Karolinska Institute
 - c) Cochrane Collaboration.
 - d) AIIMS, Delhi



20. Several Clinical Trials have been done to test the effectiveness Beta Blocker medicines in reducing the risk of acute Coronary Heart Diseases. A Systematic Review was conducted and the results are presented as Odds Ratio and CI in the diagram below. What conclusion can be drawn?

- a) Most of the trials have shown a protective effective of Beta Blocker drugs
- b) Most of the trials have shown no effect of Beta Blocker drugs
- c) Most of the clinical trials have shown increased risk
- d) No conclusion can be drawn.



21. A Randomized Control Trial comparing the efficacy of two drugs showed a difference between the efficacy of two drugs was statistically significant (p -value < 0.05). Assume that in reality, however, the two drugs do not differ. Which type of error has been committed?
- a) Type II Error
 - b) Type I Error
 - c) No Error
 - d) Power
22. Which of the following statements describes the major advantages of a randomized clinical trial?
- a) It avoids observer bias.
 - b) It lends itself to ethical justification.
 - c) It yields results replicable in other patients.
 - d) Selection bias is reduced
 - e) It enrolls representative patients required to support the inference
23. A "double blind" randomized trial of a new drug is one in which:
- a) The study group receives the new drug and the control group receives a placebo.
 - b) Neither observer nor subjects know the nature of the placebo.
 - c) Neither observer nor subjects know which subject receives the drug and which receives a placebo.
 - d) Neither the study group nor the control group knows the identity of the observers.
 - e) The control group does not know the identity of the study group.

24. When a new treatment is developed that prevents death but does not produce recovery from a disease, the following will occur:
- Prevalence of the disease will decrease.
 - Incidence of the disease will increase.
 - Prevalence of the disease will increase.
 - Incidence of the disease will decrease.
25. Measuring risk is an important concept in diagnosis and prognosis in disease management. Which of the following is the measure of Risk?
- Prevalence Rate
 - Proportional Mortality Rate
 - Relative Risk
 - Case Fatality Rate
26. Incidence Rate is a measure of:
- Frequency of old cases of disease
 - Case fatality
 - Absolute risk
 - Attributable risk
 - None of the above
27. Five years after the introduction of a vigorous detection and treatment program, the prevalence of diabetes mellitus was found to be greater than in the year prior to the introduction of the program. Which of the following are possible reasons?
- An increase in previously undetected cases
 - A reduction in the risk factors predisposing to diabetes
 - A decrease in case fatality rate of diabetes
 - An increase in the proportionate mortality of diabetes
 - None of the above
28. Case fatality rate for a given disease refers to
- The crude mortality rate per 100,000 population
 - Cause-specific mortality rate due to the disease
 - A fatal outcome of any disease
 - The percentage of deaths among cases of the disease
 - The proportion of deaths due to the disease among all deaths from all causes
29. A hospital has a catchment area of 100,000 population. 100 deaths occurred in this hospital in one year. Of these, 50 patients died of CHD, 10 due to Cancer, 10 due to Cerebral Haemorrhage, 15 due to diarrhoea, 10 due to Tuberculosis and 5 died due to unknown reasons. What is the proportional mortality due to Cancer?
- 10%
 - 15 per 1000 population
 - 10 per 1000 population
 - Can not be calculated
30. In a hospital, you are collecting data on nosocomial infections. The most appropriate hospital infection rate for Urinary Tract Infections among patients with catheter, will be
- Number of patients detected with UTI / Number of total patients admitted in the hospital
 - Number of patients with UTI / Number of patients used Catheter
 - Number of patients with UTI / Number catheter use days among patients
 - Number of patients with UTI / Total number of patients who developed any infection of all sites