1. In the investigation of an epidemic the most appropriate measure to describe the frequency of occurrence of illness is the:

    A. Prevalence
    B. Incidence rate
    C. Case-fatality rate
    D. Attack rate
    E. Mortality rate

2. In practice the existence of an epidemic is most often determined by:

    A. The identification of more than 10 new cases per week
    B. A current incidence rate that is more than two standard deviations higher than the previous year
    C. A clear case definition
    D. An incidence of disease that is clearly in excess of that expected
    E. Most laboratory specimens testing positive

3. According to the table below, which food is the most likely cause of the outbreak of food poisoning:

Food	Number of people who ate that food	Number of people who ate the food and got sick
Cold chicken	86	34
Potato salad	54	38
Egg sandwiches	76	40
Fruit pie and cream	32	12
Cheese	48	12

    A. Cold chicken
    B. Potato salad
    C. Egg sandwiches
    D. Fruit pie and cream
    E. Cheese

4. What was the attack rate among those who ate the egg sandwiches?

    A. 70 per 1000 people per year
    B. 53 per 1000 people per year
    C. 70%
    D. 53%
    E. It cannot be calculated from this information

5. Which of the following is not something that you might consider when assessing whether an association could be causal:

    A. The strength of the association
    B. Whether there is a dose-response relation between the exposure and the outcome
    C. Whether the exposure came before the outcome
    D. Whether it is possible to intervene to prevent people from becoming exposed to prevent the outcome from occurring
    E. The specificity of the association

6. Which of the following factors is most important when considering the validity of the results of a clinical trial?

    A. There are equal numbers of people in the intervention and control groups
    B. A relatively high incidence of the outcome of interest in the study population
    C. Inclusion of people of all ages
    D. Random allocation of participants to the intervention and control groups
    E. 100% compliance with the intervention

7. An orthopaedic surgeon was interested in the best way to manage patients with hip fractures. He read a paper that presented the following data from a series of 204 patients:

Number of:	Surgical treatment	Conservative management	Total
Patients	139	65	204
Survivors	103	34	137
Deaths	36	31	67
Percent mortality	26.5%	47.7%	32.9%

    A statistical test comparing the mortality rates in the two groups gave p < 0.01. Which of the following statements is/are true and why? Select all that apply.

    A. The mortality rate was significantly lower in the group treated with surgery
    B. The much larger number of patients in the group treated with surgery distorts the results
    C. We cannot draw any conclusions from these data because it was not a randomised trial
    D. We cannot draw any conclusions from these data because there was no control group
    E. Patients managed conservatively may be older and sicker than those selected for surgery

8. The following are all characteristics of the prevalence of a disease except one, which one?

    A. It includes all of the existing cases of disease in a community
    B. It depends on the duration of the disease process
    C. It can be used to help determine the health care needs of a community
    D. It depends on the incidence of disease
    E. It is always measured over time

9. A case-control study of oestrogen use and uterine (endometrial) cancer showed an attributable fraction of 60%. Assuming the relation between oestrogen use and uterine cancer is causal this suggests that:

    A. 60% of all uterine cancers can be attributed to oestrogen use
    B. 60% of women who use oestrogen will develop uterine cancer
    C. 60% of uterine cancers in oestrogen users could potentially have been prevented if they had not used oestrogen
    D. The proportion of cases that had used oestrogen is 60%
    E. The proportion of controls that had used oestrogen in 40% (100% – 60%)

10. 1000 adults who presented to their local emergency department with a possible heart attack had a blood sample collected for laboratory tests. It was later found that 300 of these people had not had a heart attack and the levels of triglycerides in the blood of this group were compared with the levels among the 700 who had had a heart attack giving the following results:

	Heart attack	No heart attack
High triglycerides	600	100
Low triglycerides	100	200
Total	700	300

The odds ratio for the association between high triglycerides and heart attack is:

   A. 3.0
   B. 6.0
   C. 12.0
   D. 2.3
   E. It cannot be calculated from the data shown

11. The association in Q10 above was statistically significant and persisted after adjusting for age, sex, gender and blood cholesterol levels so the investigators concluded that people with high triglyceride levels were at higher risk of having a heart attack. This conclusion is:

   A. Justified because the association did not change when the investigators adjusted for possible confounders
   B. Justified because the association was statistically significant
   C. Not justified because it was not a population-based sample
   D. Not justified because the groups were not matched for potential confounders
   E. Not justified because having a heart attack might lead to increased triglyceride levels

12. Which is the best way to prevent confounding from occurring in a study?

   A. Randomisation
   B. Restriction
   C. Stratification
   D. Matching
   E. Multivariable analysis

13. Which of the following measures is most useful for assessing the potential benefits of a preventive programme:

   A. Relative risk
   B. Odds ratio
   C. Attributable fraction
   D. Population attributable fraction
   E. Case fatality rate

14. Which of the following is true of a case-control study?

   A. Good for studying rare diseases
   B. Generally less expensive than cohort studies
   C. Retrospective
   D. A, B and C are all true
   E. None of the above statements is true

15. If an ecological study shows a strong positive correlation between per capita alcohol consumption and breast cancer incidence rates in European countries we can draw the following conclusion:

    A. Alcohol consumption is a risk factor for breast cancer
    B. Breast cancer rates are higher in countries with higher alcohol consumption
    C. We cannot draw any conclusions because the association could be due to selection bias
    D. We cannot draw any conclusions because the measurement of alcohol consumption is likely to be unreliable
    E. Women who drink more alcohol are more likely to develop breast cancer but this does not mean that the association is causal

16. Over the last 15 years PSA screening to detect asymptomatic prostate cancer has become more widespread. As a result, survival, measured by the time from diagnosis to death among men with prostate cancer, has increased. Using only this information, which of the following statements is correct?

    A. PSA screening has been effective in reducing mortality from prostate cancer
    B. Screening men more often would detect more cancers and reduce mortality
    C. Survival from time of diagnosis to death might have increased without any decrease in mortality
    D. A, B and C are all true
    E. None of the above statements is true

17. In a series of 1000 women with breast cancer, 32 were pregnant. From this we can conclude:

    A. Pregnancy increases the probability of breast cancer
    B. Pregnancy is rarely associated with breast cancer
    C. In this particular series of women with breast cancer, 3.2% were pregnant
    D. A, B and C are all true
    E. None of the above statements is true

18. In a study to determine whether tonsillectomy is associated with subsequent development of Hodgkin's disease, the estimated relative risk for those with prior tonsillectomy compared to those who had not had a tonsillectomy was found to be 1.9. From this we can conclude:

    A. The case fatality rate is higher among patients who have had a prior tonsillectomy
    B. The incidence of Hodgkin's disease is higher among those who have had a prior tonsillectomy
    C. Tonsillectomy appears to protect against the development of Hodgkin's disease
    D. Tonsillectomy should not be performed because it increases the risk of Hodgkin's disease
    E. We cannot draw any conclusions from these data

19. To determine attack rates for a respiratory disease of unknown origin among people attending a conference, random samples of guests staying at four hotels were surveyed for subsequent illness. Because it was not feasible to survey all guests, random sampling provided the best information because:

    A. It would identify all cases of disease
    B. It would avoid selection bias
    C. It would reduce measurement bias
    D. It would eliminate sampling error
    E. It would eliminate confounding

20. A double-blind study of a vaccine is one in which:

    A. Neither the observers or the participants know the nature of the placebo
    B. Neither the observers or the participants know who received the vaccine and who received the placebo
    C. The participants in the vaccine group do not know the participants in the control group
    D. A, B and C are all true
    E. None of the above statements is true

21. Controls are needed in a case-control study because:

    A. They may be followed to determine if they have the disease in question
    B. They increase the sample size so that statistical significance can be achieved
    C. They provide a comparable estimate of the frequency of exposure in the absence of disease
    D. They are matched to cases on suspected risk factors