11. Description and Analysis of Epidemiological Data

11.1. The candidate will have **sound knowledge** of description and analysis of epidemiological data.

11.2. The candidate will be able to do the following with **sound expertise**:

11.2.1. outline the characteristic features of different data types (binary/dichotomous, nominal, ordinal, continuous (interval and ratio))

11.2.2. describe and compare alternate methods for summarising and presenting each data type, and explain justification for preference for particular alternative/s

11.2.3. calculate and interpret confidence intervals for common population measures (proportion/prevalence, mean, odds ratio, relative risk based on attack rate, prevalence ratio, incidence risk ratio, incidence rate ratio)

11.2.4. explain using examples hypothesis testing, p-values, statistical power, Type I and Type II errors, and interpret specific examples of p-values and statistical power

11.2.5. specify with justification the appropriate parametric or non-parametric statistical approaches when comparing two groups with straightforward data types and structures (binary/dichotomous, nominal, ordinal, continuous; independent, paired/dependent)

11.2.6. explain the uses and basic concepts of linear regression, logistic regression and survival analysis as tools to analyse data in epidemiological studies, and be able to interpret output from standard examples of each

11.2.7. define hierarchical data and clustering, and provide and recognise examples of each.