

Notes from lecture 23/10/09

Tips on Choosing Test

mention of proportions
rates
percentages

— test of binomial
proportion

→ PZ2 (2 sample)
ZZ (1)

mention of standard deviation

→ test of means
PZ5 (2 sample)
PZZ (1 sample)

Placebo group, active group
→ 2 sample (PZ5 or Z2)

Bar chart or paired test
→ 1 sample (PZZ)
+ "one sample" in R

This is a copy of the OHP transparency from the lecture on Friday 23/10/09. It relates to deciding which statistical test is appropriate in various situations in the context of power and sample size calculations. This needs to be decided from the context of the question and the situation described.

Once this is known then

'which formula' to use is clear.

Other points to note are firstly that the formula gives the number in one group so this needs to be doubled to get the total number in a two-sample test (or the number available halved if the total is given). Secondly, to allow for (e.g.) a 10% drop out rate you do NOT just inflate the required sample size by 10% (think carefully what you do need to inflate it by). Thirdly, you might be told one of μ_1 and μ_2 (or θ_1 and θ_2) and then a change to a certain value.



Fourthly, if it is stated that previous studies say the prevalence is 10% then this means the proportion or percentage in the population is 10% and then it is likely a one-sample test is required. Fifthly if you invert the formulae given on pp72, 75, 77 to obtain the power you need to take the negative square root at some stage since you know that if α and β are both < 0.5 then $\Phi^{-1}(1/2\alpha)$ and $\Phi^{-1}(\beta)$ are < 0 . Finally note that the sample size required is inversely proportion to the square of the CRD so doubling the CRD reduces the sample size by a factor of 4 (exactly for tests of normal means, approximately for proportions).

