Statistical Corner

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Question 1:

What information should I prepare before approaching a Statistician for sample size calculation?

Answer :

You need to give him the hypothesis of your study, including the type of your data, the power and the significance level you want, the effect size of clinical importance in your study, the standard deviation of the continuous data. It is better if you inform him the aspects of your design e.g. randomised controlled trial, equivalence trial, any paired data or repeated measure and whether the groups have equal sample size.

Question 2:

What is effect size?

Answer:

Effect size is the minimum difference between 2 or more groups before we consider the difference is clinically important. By the way it is defined, it is a subjective quantity decided by a clinician rather than a statistician.

Question 3:

What are the available computer programs for sample size calculation? In particular, is there any freeware?

Computer programs
Power and Precision (http://www.poweranalysis.com/)
GraphPad StatMate (http://www.graphpad.com/StatMate/statmate.htm)
StudySize 1.0 (http://studysize.com/)
Pass (http://www.ncss.com/pass.html)

Freeware
Russ Lenth's power and sample-size page (http://www.stat.uiowa.edu/~rlenth/Power/)

Simple Interactive Statistical Analysis page (http://home.clara.net/sisa/samsize.htm)

Question 4:

What is the sample size we need in order to prepare a reference curve?

Answer:

A reference curve is generally estimated from huge population based study. Method of estimation may vary, such as centile chart. regression-based and smoothing methods. Depending on the estimation method, sample size requirement or calculation may be substantially different. However, as we need to accompany the reference curve by certain confidence limits, one generally needs to specify the maximum error for an estimated reference value within which one can tolerate.