

IACUC GUIDELINES FOR DETERMINING APPROPRIATE ANIMAL NUMBERS

Government regulations require the IACUC to give its assurance that all approved protocols have the potential to produce statistically significant data. At the same time, the regulations mandate that all animal use be reduced to the minimum necessary to provide that data. The IACUC must show that approved protocols have sufficient but not excessive experimental and control animals to generate meaningful data.

Where appropriate, new animal protocols should provide results from a power analysis to determine the appropriate number of animals. The power analysis statistics can calculate the number of animals needed to detect a given experimental effect if the variance in measurements is known and the P value is set (usually 0.05). This analysis will not be required for educational protocols or for pilot studies. Pilot studies are usually run to establish the principle of the method and the variance and experimental effect are usually unknown. Results from these studies should provide the values that can allow power analysis for full protocol submissions.

The attached paper appeared in a recent issue of the Journal of Laboratory Animal Research. It describes the factors that should be evaluated in designing experimental protocols. The description and uses of power analysis are also discussed.

Most statistical analysis texts should provide background information on power analysis and a discussion of the appropriate method to use for different types of studies.