Iowa State University
Institutional Animal Care and Use Committee

Guidelines for the Justification of Sample Sizes for Live Animal Research and Teaching

Relevance: One role of the IACUC is to ensure that studies requiring live animals are conducted in a responsible manner that is consistent with The Guide. One of the more challenging roles of the IACUC is to review animal protocols and ensure that each includes an estimate of the minimum number of animals needed to accomplish research objectives.

The IACUC has added text (see below) to the protocol approval form (Part B, Question 3b) to provide further guidance on what the IACUC seeks for responses to this question.

New: The Guide recommends that the number of animals should be the minimum number required to obtain statistically valid results. A power analysis or other statistical analysis to predict a minimum sample size is strongly encouraged to justify group sizes when appropriate. Click here to see examples of acceptable justifications, or consult a statistician for advice (Iowa State University Statistical Consulting; see http://stat.iastate.edu/statistical-consulting). Justifications that are based solely on “past experience”, funding, space limitations, or other non-statistical approaches are generally unacceptable. Investigators are encouraged to reference specific published studies, include data from previous research, or include a detailed explanation specific to their subject area to strengthen the justification.

Here are some resources to help investigators adequately justify a sample size of live animals for their particular study.

1. Most protocols involve a Manipulative Experiment (treatment and control groups), a Survival Study, a Comparison of Groups (single group to a specified value, or paired groups), or similar design. For these types of studies the best justification comes from a power analysis or minimum sample size calculation. The OpenEpi Web site (http://www.openepi.com/Menu/OE_Menu.htm) is an excellent resource. From the main page, in the menu at left, choose the most appropriate method under either the “Sample Size” or “Power” option. Another good option is StatPages (http://statpages.org); select the link “Power, sample size and experimental design” from the bottom of the table of contents and you will find a list of options specific to diverse study designs. It is acceptable to use published work from a similar previous study as long as the justification includes citations for all relevant work(s).

2. If you are conducting a Pilot Study, please make this clear and justify how the requested number of animals will be used to guide future studies. There are formal sample size calculators for a pilot study (http://137.120.14.46/epid/n1.htm) if you want to use one.

3. If this is a Teaching Protocol please justify the number of animals with respect to the stated student learning outcomes for the course.