

Choosing an Analysis Method

As they arrive, meet the people in your group for today. Find out their names (and pronunciation) and something about where they come from (country, state, college, neighborhood, major). Brainstorm with them about the following question.

There are often several reasonable statistical methods for answering the client's subject matter question. What are some possible criteria for deciding which one to use? (hearts, be ready to share...)

Space for noting additional criteria...

What additional questions does your group have about the case, the client, or the goals? Think of questions both to help you understand the case and to choose an appropriate statistical method.

Brainstorm about possible statistical methods for answering the client's questions. Consider both simple methods and sophisticated ones. (diamonds, be ready to share...)

From a draft of the project proposal...

Background and Goals

This study concerns the coagulation ability of dogs with septic peritonitis. This condition refers to contamination within the abdomen due to loss of integrity of GI tract, foreign body penetration, or surgery complications; it is a serious condition for which immediate surgery is needed. It is unknown if the coagulation ability of these dogs is limited, or if their coagulation ability makes the surgery more or less likely to be successful.

To measure coagulation, four platelet indices are used: platelet count, MPV (mean platelet volume), PDV (platelet distribution width; a measure of how uniform they are), and PCT (platelet crit; a measurement of mass). Three are directly related (one is product of other two). These platelet measures are important because platelet are involved in clotting (coagulation); either low or high values can be concerning, as either trouble clotting or complications due to clotting can add to the seriousness of the condition.

The primary aim of this study is to characterize coagulation abnormalities in dogs with septic peritonitis. The secondary aim is to determine if there are differences in these abnormalities between survivors and non-survivors of the surgery.

Project Design and Data

The data for this retrospective study comes from cases in the Veterinary Clinic database from 2009 to 2014. To be included, dogs must have met certain inclusion and exclusion criteria. The data set consists of 48 animals. The variables are the four platelet indices and whether or not the dog survived the surgery (or, if surgery was not performed), and also the age, breed, sex, and weight of the dog.

To determine abnormalities in the four measurements, we also have reference intervals (the range within which 95% of normal dogs are) with 95% confidence intervals for each measurement. This was done for an earlier study, though the data remain available if needed. The reference intervals were computed from 43 normal dogs, also from the Veterinary Clinic database. These normal dogs met strict inclusion/exclusion criteria. Reference intervals were created using the normal approximation and confidence intervals were computed using bootstrap simulations.

Name: _____

What kind of method would you suggest, and more importantly, why?

Please leave this sheet, your nametag, and your playing card on the tables by the door when you leave. The other sheet is for you to keep; this sheet will not be returned except by request.