DREXEL UNIVERSITY ANIMAL CARE AND USE COMMITTEE
POLICY FOR ANIMAL BLOOD VOLUME SAMPLING

OBJECTIVE: The Drexel University Animal Care and Use Committee has established this policy to specify blood sampling volumes which can be obtained without having an adverse effect on research animals.

RESPONSIBILITY: The Investigator is responsible for ensuring that each individual obtaining blood from animals follows this policy. ULAR is responsible for providing training on the appropriate methods for obtaining blood samples from various species of animals.

BACKGROUND: Moderate (10-20%), and even small (less than 10%) blood loss can have profound physiologic effects on research animals. Effects may be species, age and sex dependent and, if not taken into account, may affect the outcome of experiments. Effects may include reduction in cardiac output [50% in rats with 15% blood loss], change in anesthesia metabolism [due to decreased perfusion of the liver in dogs with 6% blood loss], and a number of other documented changes. (McGuill, MW and Rowen, AN, Biological Effects of Blood Loss: Implications for Sampling Volumes and Techniques, ILAR News, Volume 31, No. 4, Fall, 1989.)

SINGLE BLOOD SAMPLE: A single blood sample within a 28 day period must not exceed 10% of blood volume. This may be estimated as 1% of body weight expressed in ml, e.g., 1% x 200 gm rat = 2.0 ml/28 days; 1% x 2.5 kg rabbit = 25 ml/28 days. Recognize that older animals have less blood per 100 gm and that the "1% rule" would result in blood loss of 18% in a 400 gm rat.

MULTIPLE SAMPLINGS: The drawing of multiple small samples over time allows recovery between samples and the amounts and frequencies can be determined on an individual basis if necessary. Nevertheless, amounts should not exceed 5% of the blood volume within a 7 day time period, which equals approximately 0.5% of the body weight.

TERMINAL SAMPLES: Blood samples taken from animals that will not recover from anesthesia are not covered by this policy.

There are other combinations of blood volumes over various amounts of time which may be acceptable, pending IACUC review.

Approval date: December 2003
Last review date: February 13, 2008