

**UNIVERSITY OF WESTERN ONTARIO
ANIMAL CARE AND VETERINARY SERVICES**

Standard Operating Procedure # **360-03**

Blood collection / Volumes / Multiple species

1 INTRODUCTION

“Standard Operating Procedures” (SOPs) provide a detailed description of procedures to be followed unless alternate procedures have been outlined in an “Animal Use Protocol”. If an investigator wishes to proceed differently from an approved SOP, the changes must be itemized in the application. To assist the Animal Use Subcommittee in protocol review, the reasons for deviating from the standard procedure should also be included.

Approval of the protocol indicates approval of the deviation from the SOP for that project only.

The collection of blood samples must be performed in such a manner that the animal’s health is not compromised. Collection of large volumes of blood can lead to severe decreases in blood pressure, shock, gastric necrosis and death. The information presented here pertains to bleeding at two or four week intervals without the necessity of checking haematological parameters or administration of supplemental iron or fluids.

2 PROCEDURE

2.1 Animals must be adequately sedated or restrained and the technique used for the phlebotomy appropriate for the species. Information on appropriate anaesthetics is available from ACVS.

- 2.1.1 Rodents manual restraint for small volumes, general anaesthesia for larger volumes
- 2.1.2 Rabbits Acepromazine with or without topical for other than small volumes
- 2.1.3 Primate general anaesthesia unless otherwise approved by ACVS
- 2.1.4 Dog/Cat manual restraint or general anaesthesia (large volumes)
- 2.1.5 Ruminant manual restraint or general anaesthesia for large volumes
- 2.1.6 Fish general anesthesia required

2.2 Animals must be monitored that bleeding has been stopped

2.3 Blood and sample volumes

SPECIES	TOTAL BLOOD VOLUME (ml/kg*)	MAX. SAMPLE, EVERY 2 WEEKS (ml/kg)	MAX. SAMPLE, EVERY 4 WEEKS (ml/kg)
Mouse	55	5 (0.05 ml/10 g)	7 (0.07 ml/10 g)
Rat	50	5	7.5
Rabbit	60	6	9
Guinea Pig	75	7	11
Monkey	65	6	9.75
Dog	90	9	13.5
Cat	75	7	11
Goat	70	7	11
Sheep	60	6	9
Pig	65	6	9
Fish	60	6	9

- 2.4* NON-OBESE WEIGHT (Using the scale weight of an obese animal will result in an artificially high blood volume)

33 SUMMARY

- 3.1 Provided the animal remains healthy the above volumes can be drawn repeatedly. If it is necessary to draw larger or more frequent samples consult ACVS. **WITHDRAWAL OF LARGER VOLUMES MUST HAVE PRIOR APPROVAL OF THE ANIMAL CARE COMMITTEE.**

4 REFERENCES

- 4.1 Benjamin MM: **Outline of Veterinary Clinical Pathology.** Iowa, Iowa State University Press, 1981
4.2 Intravartolo CS: **Blood Collection and Transfusion.** In Pratt, PW (ed.): Medical Nursing for Animal Health Technicians. Santa Barbara, American Veterinary Publications, 1985, pp 321-330
4.3 McGill MW, Rowan AN: **Biological Effects of Blood Loss: Implications for Sampling Volumes and Techniques.** ILAR News 4:5 Fall 1989
4.4 Schalm OW, Jain NC, Carrol EJ: **Veterinary Hematology (3rd ed).** Philadelphia, Lea & Febiger, 1975
4.5 Percy DH, Personal Communication.

5 REFEREES

- 5.1 Percy, D: Pathologist, Department of Pathology, Ontario Veterinary College, University of Guelph, Guelph, Ontario