Veterinary Health Center
MANHATTAN, KANSAS

OFFICIAL PROTOCOL

BLOOD DONOR PROGRAM

Purpose: To define responsibilities and care within the Blood Donor program for both feline and canine.

Pet Health students are responsible for the daily care and well-being of the feline blood donors. We are committed to providing optimum, humane donor care for the welfare of the donors and to maintain the safety of our blood supply.

I. Blood Donor Faculty Coordinator Responsibilities

A. Oversight of medical care

B. Compliance with current KSU IACUC protocols. (All requests for use of donor animals for other procedures must be approved by the Faculty Coordinator prior to being performed.)

C. Ensuring an adequate supply of blood products for routine emergent care at the VHC.

D. Assistance with acquisition of replacement donor animals and placement of retiring donors in suitable homes.

E. Providing Adjustment Request forms to the Fiscal Officer for write off of potential donor charges to the **WS** Blood Donor SA account.

F. Answering questions and making final decisions, along with the Associate Dean of Clinical Programs, for the VHC blood donor program.

II. Blood Donor Primary Care Veterinarian Responsibilities

A. Daily oversight of donor care and status.

B. Contacting the Blood Donor Faculty Coordinator regarding medical questions.

C. Coordination of routine diagnostic testing and vaccinations.

III. Blood Donor Supervising Nurse Responsibilities

A. Maintaining and updating protocols for drawing blood from canine and feline donors. Such protocols will be clearly defined so they can be readily followed in situations where additional blood products are needed beyond what is available.

B. Ensuring an adequate supply of blood products for routine emergent care at the VHC.

C. Acquisition (in-house feline blood donors) or recruitment (volunteer donors) of replacement donor animals on a timely basis and facilitating placement of retiring donor animals (cats) in suitable homes.

D. Making sure owners of outside blood donors receive the following benefits:

1. Up to one 40lb bag of dog food at the time of donation

2. A Pet Health exam and vaccines at the time of donation.

3. Flea/tick & heartworm preventatives annually from date of first donation.

E. Organizing and stocking the blood donor collection supplies.

F. Ordering supplies as needed.

IV. Student Responsibilities

A. Feline Donors

1. Complete physical examination, TPR, nail trims (if needed), and body weight (in kg) at the start of each week. (Monday if not a holiday). Record all findings on the Instinct treatment sheet.

2. Daily notation should be entered in Instinct (not complete physical) on remaining days of the week. Please complete SOAP and physical examination if a cat is ill.

3. PCV and TP may need to be checked intermittently upon request of a clinician.

4. Groom and provide positive interactions with the cats daily.

5. Heartworm preventative and flea/tick control is to be given on the 1st of each month (contact the Blood Donor Supervisor for medications).

6. Cats will be fed daily by Small Animal Internal Medicine or Emergency staff. Uneaten food portions will be labeled by the animal caretakers and placed in the 1st empty cage in the Cat Donor Room labeled as Uneaten Food. They will let them out of their cages in the mornings.

7. Small Animal Medicine staff will feed the cats at 4:30 PM and return them to their designated kennels. On weekends and holidays this will be performed by the Small Animal Emergency staff.

8. Consult with the Small Animal Medicine Section Head or the Blood Donor Faculty Supervisor regarding any of the cats' medical issues (vomiting, diarrhea, anorexia, etc.) as they occur.

If a donor has a problem, students should notify the intern scheduled on emergency service for that week or the Blood Donor Faculty Coordinator. Students should write their name on each blood donor they are assigned.

V. Blood Donor Records and Charges

A. Volunteer Blood Donors

1. Desk personnel will register the patient. The Blood Donor Faculty Coordinator or their designee will be applied to the Business Office to write off the client charges to the Blood Donor SA account.
    a. If other items outside the packages are performed, a discount must be removed prior to entering those performed treatments.

2. Screening packages will consist of the following:
    a. Initial screening:
        i. Z2109 (Exam, Temperament Evaluation, Blood Typing Card Test, Blood Typing ABRI)
    b. Second Screening:
        i. Z2110 (Exam, Blood Pressure Doppler, SNAP 4Dx Heartworm test, Chem Profile, CBC, Urinalysis, Fecal Flotation, Blood Transfusion Panel, Cystocentesis)
    c. Donation Day:
        i. Z2113 – Blood donor blood draw (Blood donor visit, Blood donation bag, food)

3. Owners of outside blood donors will receive:
    a. Up to one 40lb bag of dog food at the time of donation

    b. A Pet Health exam and vaccines at the time of donation or once during the twelve months following the donation.
        i. Pet Health will provide the following vaccinations:
            - Bordetella, Distemper, Lepto, and Rabies
        ii. Yearly Preventative Bloodwork will consist of:
            - Exam, SNAP 4Dx Heartworm test, Chem Profile, CBC, Urinalysis, and Fecal Flotation.

    c. Preventatives (Nexgard & Intercepter) will be dispensed by the VHC Pharmacy at 6 months at a time.

4. The Hospital Administrator will generate write-offs for outside blood donors to “BD” as services are received.

B. Feline Blood Donors

1. Charges- Donation – this charge is meant for both inside and outside feline blood donors.

a. Z2541 Blood Donor Blood Draw Feline
    i. Blood Bag Collection Double 100ml w syringe Feline" W3676
    ii. Blood Donor Visit" E1218
    iii. Blood donor Blood draw Z2113
    iv. Ketamine Inj 100mg/ml P1627
    v. Diazepam Inj 5mg/ml P1533
    vi. Anticoagulant Sodium Citrate 4% Solution—250ml P4190

VI. Blood Collection and Preparation of Components

A. Collection in Cats

1. The recommended sedation protocol for in-house blood donor cats:
    a. Ketamine (100 mg/ml): 0.1 ml/kg
    b. Diazepam (5 mg/ml): 0.1 ml/kg
    c. Acepromazine 1 mg/ml: 0.002 mg/kg
    d. These drugs are combined and given IV

2. The recommended sedation protocol for volunteer blood donor cats:
    a. Ketamine 100 mg/ml: 3 mg/kg
    b. Butorphanol 10 mg/ml: 0.2 mg/kg
    c. Dexmedetomidine 500 ug/ml: 1 ug/kg
    d. These drugs are combined and given IM

3. In-house donor cats that are available for donation are marked on their kennels as “available.”

4. The cat is sedated, the skin over the jugular vein is clipped and prepped (chlorhexidine/alcohol).

5. Blood is collected from the jugular vein into a 60ml leur-lock syringe that contains one of two anticoagulant solutions: ACD solution at 7 ml ACD/53 ml whole blood OR sodum citrate solution at 2.5 ml/57.5 ml whole blood solution. These are located in large animal Cubex. Collection is done via a 19ga butterfly catheter. Collect into a 60ml leur-lock syringe with added anticoagulant. Rock carefully every few mls during collection so it doesn't clot. (Do not put any ACD into the butterfly line, as there is not any flash back if ACD is in line). Once collected, blood can then be administered with a syringe pump. Keep a sterile, capped needle on syringe until ready to use.

6. Following collection, wrap the neck with gauze and Vet Wrap and observe until the cat is fully awake from sedation.

7. Return the blood donor cat to the Ward and complete the Donor Cat Blood Donation log on Instinct.

B. Collection in Dogs

1. Patient Arrival

a. The desk will check in the patient into both Instinct and Vetstar. It is important to get a weight on each donor as they come in prior to donation. Donors come in frequently enough that they do not need a full physical exam done on them at each time of donation, a TPR is fine.

b. The Instinct forms needed are:
   i. "Blood Donor Brief Hx/ Exam"
   ii. "Canine Blood Donor Draw Record
      - Please add how much blood product was obtained at this visit and patient's weight.

2. Set Up

a. Prior to collection, connect the vacuum regulator to the vacuum chamber and place the chamber on the scale.

b. Hang all blood bags (these are currently triple bags and are in the blue box) from the hook on the lid of the vacuum chamber and run the collection tubing through the notch on the top edge of the chamber. Make sure you have a firm seal between the lid and the chamber.

c. The little bag that is closest to the needle can be clamped off and discarded. (Before and after pictures shown below)

d. The bags have “glow stick” clamps on them that will need to be broken prior to the donation. There is a hemostat that can be attached to the tubing to keep air out of the bag of blood.

e. A handful of gauze and a roll of vet wrap will need to be set out in arm’s length in preparation for the end of the donation.

3. The Donation Process

a. An area over the jugular vein should be clipped. The donor is then placed in lateral decumbency and the area over the jugular vein is surgically prepared.

b. Inject lidocaine (0.5-1.0ml) subcutaneously over the proposed needle site. (Mix lidocaine for subcutaneous injection with sodium bicarbonate (1:9) – one ml maximum)

c. Prepare the skin again with chlorhexidine and alcohol.

d. Turn on the vacuum chamber and adjust the vacuum to 100-150 mmHg.

e. Apply pressure to the jugular furrow to distend the jugular vein and perform venipuncture. After penetrating the jugular vein, remove the hemostat from the collection tubing. Blood should start to fill the blood bag at a rate of 2-4ml per second. Collect 477g of blood (1ml of blood weights 1.06g, therefore 477g of blood equals 450ml).

f. After the primary bag is full, clamp the tubing with a hemostat close to the needle, remove the needle from the vein and replace the needle cap. Be sure to bandage the dog’s neck with 4x4 gauze and vet wrap.

4. After Blood is Collected

a. With the hemostat in place, use a tube stripper to strip blood from the tubing back into the primary bag three times to ensure adequate mixing with anticoagulant. Let blood fill the tubing after each stripping.

b. Using the hand sealer, seal the tubing at every other “X” along the tubing. Leave one 6-inch long segment close to the blood bag to facilitate handling.

c. Remove the hemostats and cut the needle off in the sink.

d. Fold the clamped segments of tubing together and fasten with an elastic band. Tape pig tails together with white tape.

5. Continue these steps if separating the blood:

a. The centrifuge is located in B121

b. To turn the centrifuge on there is a lever on the right-hand side.

c. Push the open button and the centrifuge will open.

d. Take the large top off and then continue to put the blood into the centrifuge.

e. Place bags (including the satellite bags and clamped tubing) in the centrifuge cups so that the blood bag is closest to the rotor head.

f. It is **IMPORTANT** to make sure the blood bags are sitting upward with the tubes coming from the top, if this is not done correctly once spun the red blood cells will be the first to come out of the bags instead of the serum.

g. There is a counterbalance already in the machine, a counterbalance is not needed if there are an even number of bags.

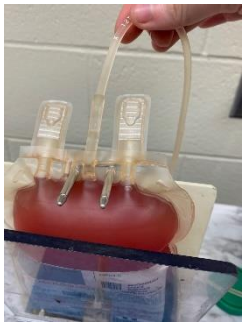
h. Screw the lid on the rotor tightly and close the centrifuge lid. Centrifuge at 4,000 RPM for 15 minutes at 4°C, with the brake off. It will take 25 minutes for the blood to stop spinning.

6. Once Centrifuged:

a. Set up the plasma expresser and the scale.

b. Carefully remove the bags from the centrifuge cups.

c. Place the primary bag containing centrifuged blood on the plasma expresser.



d. Place the plasma bag on the scale and tare to “zero”.

e. Our bags currently have three places for the plasma to go to. Clamp and cut off two of the plasma bags.

f. Break the closure device of the primary bag (“glowstick” on top of the bag) and express the plasma into the satellite bag with the plasma expresser.

g. Stop the plasma flow before any erythrocytes enter the plasma bag tubing by clamping the tubing with hemostats ~6cm from primary bag. Release the plasma expresser.

h. Record the plasma volume on the bag, as well as the collection and expiration dates and ID unit number.

7. Before bringing to the Dispensary to be stored in Cubex:

    a. Bags will need to be labeled with:
        i. Date of donation
        ii. Donor name
        iii. Date of expiration
            - Red blood cells is 3 weeks from donation
            - Plasma is 1 year from donation
        iv. Then label the red blood cells if it donor was positive or negative.
            - There are Negative(yellow)/ positive (pink) stickers in the donor binder.

    b. On the right side of the blood donor cart, there are white boxes that the fresh frozen plasma (FFP) goes into. On the front, label them K9 FFP. Then fill in the blanks on the side of the box FFP is good for up to 1 year from the date it was pulled on.

8. Below is labeling for appropriate storage within Cubex: