



### Jenny Walton BVM&S MRCVS

Jenny qualified from R(D)SVS in 1998. She worked in mixed practice for four years before moving into the field of small animal emergency and critical care with Vets Now, where she worked for 12 years. Through Vets Now, she ran the practical trial researching canine blood banking in 2005-2006.

Jenny is the veterinary supervisor for PBBUK since its launch in 2007. Her role includes advising practitioners daily on the appropriate use of PBB blood products, overseeing the practical and VMD legislative veterinary aspects of blood collection at PBBUK and leading research on future development opportunities. Alongside this role she works part time in general practice.

# The Role of Pet Blood Bank UK

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**ABSTRACT:** Pet Blood Bank UK (PBBUK) is a charity that provides a national canine blood bank. It was launched in 2007. Products and services are available to all UK veterinary professionals.

Blood is collected from volunteer canine donors who meet and pass rigid screening criteria at organised collection sessions in locations throughout the UK. The blood donated at these sessions is taken to a state-of-the-art processing centre in Loughborough, Leicestershire where it is processed into red blood cells and plasma products. It is then stored in temperature-controlled environments, ready for supply to veterinary practices across the UK 24 hours a day, seven days a week.

Last year, Pet Blood Bank UK (PBBUK) supplied over 1,900 units of packed red blood cells (pRBCs) and over 1,400 plasma products; the charity has experienced a 25 per cent increase in demand for products year on year.

Customers are spread throughout the UK and their skills and expertise vary depending on their training backgrounds. The service is easy to access, and PBBUK currently supplies its service to over 400 customers, made up of all of the UK veterinary schools, 51 per cent of the specialist veterinary referral centres and veterinary hospitals, 71 per cent of emergency centres and one third of all veterinary practices, accounting for 38 per cent of the overall small animal veterinary market in the UK.

Blood products are provided to veterinary surgeons at cost (including the costs of production and running the service) and each customer must agree to PBBUK's terms and conditions, which state that, owing to the voluntary nature of the programme, all blood products should be charged at the same cost to the client. This ensures that no profit is made from blood donation.

In order to provide this nationwide service, PBBUK holds a government licence, regulated by the Veterinary Medicines Directorate (VMD) (ABB 30549/8000), which requires the charity to have a robust quality control system complying with good manufacturing

practice, a staff training system and regular quality reviews.

PBBUK is audited by the VMD at routine regular intervals to ensure its compliance with the regulatory system – and to date has passed every inspection.

Transfusion medicine is a relatively new concept for the UK veterinary profession, it being only seven years since canine blood components were made available. Products and services to support all canine transfusion needs include:

- blood products
- blood collection equipment
- diagnostic equipment in the form of simple bench-side typing and cross matching kits
- blood administration equipment
- blood storage equipment.

Whilst canine blood products are now readily available, other species, such as cats, do not have access to blood products through pet blood banks; however, PBBUK supports veterinary practice requirements for such species by providing equipment and services.

PBBUK supports the advancement of veterinary transfusion medicine, and its highly qualified staff members offer a free advice service to the veterinary profession. In addition, the organisation regularly provides lectures on blood banking and transfusion medicine across

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the UK, with educational workshops held at veterinary conferences, universities and in veterinary practices.

PBBUK has an ongoing research programme into the welfare aspects of – and the science behind – the production and clinical use of blood products.

PBBUK is open 9 - 5.30 Monday-Friday and offers a cost-effective next-day delivery service; however, for emergencies, a 24-hour service is available and staff are always on call to assist with delivery requests.

The organisation encourages all practices, if they have sufficient caseload, to store blood products on site so that they are available when required. In the case of smaller veterinary practices, PBBUK encourages them to know who stocks blood products locally, so that they can refer transfusion cases, if necessary.

Some referral centres and emergency clinics may also be prepared to lend out blood products at short notice, if geography makes it a more sensible option. PBBUK facilitates the sharing scheme by holding a database on its website of veterinary practices happy to share blood products at [www.petbloodbankuk.org/vet-professionals/blood-finder](http://www.petbloodbankuk.org/vet-professionals/blood-finder).

## Collection sessions and donors

Donation sessions for PBBUK operate at locations around the UK. Each collection team comprises five members of staff: one veterinary surgeon, one registered veterinary nurse (our phlebotomist) and three animal care assistants (**Figure 1**).

Figure 1. A collection team



Figure 2. Blood donors

Volunteers are also invited to help at collection sessions, and they come from many different walks of life – from veterinary staff to kennel owners, donor owners to veterinary and veterinary nursing students. Donation sessions take place at veterinary surgeries that offer themselves as host venues, at large breeding establishments and kennels. Owners are actively encouraged to remain with their dogs unless they inform staff they would prefer not to do so. Donors are not sedated and can donate around every three to four months.

Donors come to PBBUK for enrolment mainly via their hosting veterinary practice, but also through media coverage, Facebook, the PBBUK website or just word of mouth. A postcode search on the PBBUK website enables owners to search for their nearest session at [www.petbloodbankuk.org/pet-owners/blood-session-locator](http://www.petbloodbankuk.org/pet-owners/blood-session-locator).

The coordinators at the PBBUK office assess potential donors according to the

certain criteria (**Figure 2**). A potential donor must be/have:

- over 25kg lean weight
- a suitable temperament (i.e. likes meeting new people and is happy being handled)
- 1-8 years old
- vaccinated according to vaccination policy (taken from both manufacturers' and WSAVA guidelines) or blood titres measured annually
- fit and well and on no excluded medications
- not travelled outside the UK and Eire
- had no previous blood transfusions.

Owners fill in comprehensive forms that allow PBBUK to identify the donor uniquely, by microchip or ear tattoo, as well as supplying their general details. They also fill in a full health history.

The PBBUK veterinary surgeon performs a full clinical examination, including scoring an assessment of the donor's ability and anatomical suitability for the donation process. All new donors and, annually thereafter, all donors have a complete biochemistry and haematology panel run via an external laboratory.

The PBBUK laboratory also blood types all donors. Dogs need to be in tip-top shape to donate, not only for their own welfare but also to ensure that the critically ill recipient dog is getting a high quality product. To this end, PBBUK screens one per cent of our enrolled dogs for infectious diseases not at this time endemic to the UK, but significant if transfused, and one per cent of all blood units collected are tested for sterility using microbiology.





▣ **Figure 3.** Caudally directed jugular method of blood collection

## How do we collect blood?

The RVN phlebotomist talks the owner through donation again and ensures that the owner and donor are happy before the RVN and two trained assistants lift the dog into lateral recumbency onto the donation table. The donation itself takes an average of around five minutes.

At PBBUK we use a caudally directed jugular placement after sterile skin preparation (**Figure 3**). Each donor donates 450ml of blood.

After donation, the donor is then lifted gently down from the table and given lots of fuss and attention, treats and a toy. Once the donor's pulse rate, mucous membrane colour and demeanour are all normal, the donor is allowed to go home.

## How do we process blood?

Units of blood are transported in an insulated box from the collection venue to the PBBUK laboratory, where they

▣ **Figure 4.** Packed red blood cells (pRBCs)



are centrifuged and separated into component parts, primarily packed red blood cells (pRBCs) (**Figure 4**) and fresh-frozen plasma (Wardrop et al., 2005) (**Figure 5**).

Fresh-frozen plasma can also be further processed into cryoprecipitate and cryosupernatant after initial storage, to help with a broader range of conditions.

The bags used for collection have three 'satellite' bags that enable the components to be prepared in a completely closed manner with no prospect of contamination during the processing stage (**Figures 6 - 8**).

Packed red cells are stored in a nutrient solution; in the EU this is saline-adenine-glucose-mannitol (SAG-M), added to prolong shelf life in comparison to storage in CPD alone. This combination extends shelf life from 21 days to 42 days. The bags are then stored at 2° - 6°C.

Aliquots (small line segments) of all products produced are kept for their shelf life plus one year, for quality analysis as required. Blood units are then transported as required in appropriate coolant to UK veterinary practices, where they are used immediately or stored on site.

## Transfusion reactions

Transfusion reactions, while rare, are followed up using samples returned by practices and the stored aliquot samples. Having transfusion reactions reported, allows PBBUK to monitor for trends and direct future product development.

▣ **Figure 5.** Fresh-frozen plasma



▣ **Figure 6.** Blood bags being prepared to go into the centrifuge



▣ **Figure 7.** Prepared bags sit opposite each other in the centrifuge



▣ **Figure 8.** Plasma being separated from red cells

## How can veterinary nurses help PBBUK?

- Spread the word about PBBUK to your colleagues and clients.
- Encourage owners to enrol their dogs as donors.
- Come along to a session to see what we do.
- Tell us about your successful transfusion stories (it makes us smile!) and, if appropriate (and with the owner's permission), take photos so we can use them for public relations.
- Report any transfusion reactions.
- Fund-raise for Pet Blood Bank UK. [vni](#)

### Reference

WARDROP, K. J., REINE, N., BIRKENHEUER, A., HALE, A., HOHENHAUS, A., CRAWFORD, C. & MICHAEL R. LAPPIN (2005) ACVIM Consensus Statement - Canine and Feline Blood Donor Screening for Infectious Disease. *Journal of Veterinary Internal Medicine* 19: 135-142.