

UP's Onderstepoort Animal Blood Bank: How donor animals are saving other animal lives

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UP's Onderstepoort Animal Blood Bank provides life-saving blood transfusions to animals

Since the 1990s the Onderstepoort Animal Blood Bank (OABB) has been the saving grace of many dogs, cats, and even prized stud sheep, horses and cattle in need of life-saving blood transfusions. The OABB is housed in the [Onderstepoort Veterinary Academic Hospital \(OVAH\)](#) of the University of Pretoria's [Faculty of Veterinary Science](#).

Blood from the OABB is used for the hospital's patients, and some is sold to veterinary practices in Pretoria and beyond that might experience blood stock shortages.

The service was started in the mid-1990s by veterinarian Dr Trudie Dippenaar, who was also a specialist in Veterinary Clinical Pathology. The facility was extended in the early 2000s by Professor Amelia Goddard and Dr Liesel van der Merwe. Through their initiative, a blood separation centrifuge was acquired to process donated blood. Since 2001 vets across the country have been able to buy fresh frozen plasma and stored whole blood from the OABB.



Dr Yolandi Rautenbach (left) specialist veterinary clinical pathologist and head of the Faculty's Onderstepoort Animal Blood Bank (OABB) and Sr Marizelle de Clercq, first veterinary sister responsible for the OABB with Dakota, one of the Faculty's older blood donors.

Around 360 bags of canine blood are collected annually and processed at the OABB's in-house facilities, where they are turned into blood products such as bags of packed red blood cells or fresh or frozen blood plasma. Fresh canine whole blood must be used within 12 hours of collection, while stored whole blood can be kept for 21 days. Packed red blood cells can be safely stored for 42 days, while frozen plasma can be kept for up to five years.

"Over the past six years, OABB has on average provided 705 bags of various types of canine blood products annually, mainly to dogs treated at OVAH," says OABB head Dr Yolandi Rautenbach, a senior lecturer and specialist in Veterinary Clinical Pathology in the Department of Companion Animal Clinical Studies.

The summer months are particularly busy, with many cases of biliary fever (also known as tick fever or babesiosis) and snake bites being treated. Cats living in coastal provinces can contract feline biliary fever and would therefore also need blood transfusions.

Dr Rautenbach sums up a typical week for OABB: "During the past seven days, blood transfusions were given at OVAH to anaemic dogs that suffer from auto-immune diseases, and others that ate rat poison and therefore suffered internal bleeding. Blood was also provided to dogs undergoing surgery, and others that suffered traumatic injuries after being run over by cars."

Because of the specific process of blood collection being used, OABB only stores canine blood products in large quantities. Feline blood can only be stored safely for around 12 hours due to the open collection system used. Only small volumes of up to 60 ml (or 11 to 13 ml per kg of body weight) at a time can be collected from donor cats.

Blood donors

As is the case for South Africa's blood service for humans, OABB's lifeblood is literally its donors.

"The scale of our service is only possible thanks to the willingness of many pet owners who volunteer their dogs and cats as blood donors," Dr Rautenbach says. "Most of them started doing so after a much-loved pet was saved by receiving a blood transfusion."

Some dog breeders, trainers, and a few security companies also make their dogs available for this purpose as part of their community projects. "The animals must of course be easy to manage, and be in good health," Dr Rautenbach adds.

All donors are treated as humanely as possible, and in accordance with the strictest ethical and scientific measures. Blood is only collected from animals that have never had a blood transfusion of any kind themselves.

Donor dogs are typically up to eight years in age. Only larger breeds are allowed to donate, because donor dogs must weigh more than 25 kilograms. They can donate every eight to 12 weeks, with up to 450 millilitres being collected at a time.

Donor pets receive regular health check-ups and free vaccinations and deworming treatment when needed. Owners also receive pet-related vouchers.

Sister Marizelle De Clercq has been involved in the physical collection of donated blood while also running the donor database for more than two decades.

She reveals that eight greyhounds are always on standby on the UP Onderstepoort campus, in case of an emergency that requires fresh blood, or for when stocks of other products run low. These dogs grow up in the residences of final-year students, and in so doing receive ample love and attention. Greyhounds make good donors because they have a very high red blood count compared to that of other dog breeds.

“When they become too old, they are rehomed,” says Sister Melanie McLean of OVAH, who has been overseeing the greyhounds’ care since 2003. She is particularly grateful to the makers of Ultra Dog dog food, who have sponsored the greyhounds’ food since 2020.

Sr De Clercq is also at hand when blood products are needed for animals other than dogs. “When we need feline blood, for instance, she turns to students and staff who are cat owners and are on our database,” Dr Rautenbach explains.

It is generally safe to give dogs any type of canine blood at least once. More care is needed, however, if further transfusions are needed. In such cases blood typing and other tests must be done to ensure that a dog does not have a severe reaction.

Just like humans, cats, sheep, and horses can have a bad reaction when receiving donor blood that is not of the same blood type as their own. Therefore, blood compatibility testing is crucial before they can receive a transfusion.

All in all, UP’s Faculty of Veterinary Science and its Onderstepoort Animal Blood Bank are making sure as many animal lives as possible are saved using the best and latest research, knowledge, and technology.

If you live in the vicinity of Onderstepoort and would like to check if your pet can become a blood donor, please contact Sr De Clercq on marizelle.declercq@up.ac.za

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