IMMREVIEW

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Giving Back



Accelerating your innovative research

Giving Back



Nicolas Borenstein, DVM, PhD Scientific Director - Founding Partner -Board Member.

"We are not a veterinary clinic and our primary mission is indeed to validate medical devices and novel therapeutic strategies in clinically relevant large animal preclinical models. However, it is important to us to dedicate time and resources to restoring health to pets and other animals with complex conditions. After nearly 20 years of a close and fruitful collaboration between the Veterinary School of Maisons-Alfort near Paris and IMMR, we regularly perform surgical or percutaneous patent ductus arteriosus closure, balloon dilatation of pulmonic stenosis, pacemaker implantation, and valvular replacement under cardiopulmonary bypass. We have the technical platform, the know-how and the wish to apply those techniques to veterinary patients. There are only a handful of veterinary teams worldwide that perform such interventions. It is for us a meaningful way to give back to animals for what they have given to help advance human health over the years."



In addition to conducting scientific and medical device projects for human research, we have also been performing clinical veterinary cardiovascular surgery and interventional cardiology for more than 20 years. This is the result of a long-standing partnership between IMMR and Pr Valérie Chetboul with the Cardiology Unit of the Maisons-Alfort Veterinary School near Paris. Ever since, we operate on veterinary patients with cardiovascular conditions, place pacemakers for conduction tissue abnormalities and implant surgical or trans-catheter valves for structural heart disease, etc. In a nutshell, we leverage the technical platform and know-how of IMMR to treat cats and dogs and the occasional exotic animal - with spontaneous heart disease. Some of these achievements were published in peer-reviewed scientific journals and are accessible here (https://www.imm-recherche.com/expertise/).



Valérie, can you tell us a bit more about yourself?

In brief, I am a French veterinarian, board-certified from the European College of Veterinary Internal Medicine (ECVIM-CA, Cardiology), with a PhD and a post-doctoral degree. I am Professor of Cardiology at the National Veterinary School of Alfort (ENVA, Maisons-Alfort, France) and lead the Cardiology Department (Alfort Cardiology Unit, UCA) with a long-standing research program at the INSERM (the French NIH). I have other projects very much « at the heart » of my extra-curricular activities, such as non-profit associations and foundations. I am on the scientific board of the "Fondation Un Coeur" ("One Heart Foundation") which I co-founded in 2013 with a mission to support research, education and veterinary medicine (mainly cardiology), for all species (wild animals and pets). We aim to contribute to animal welfare, quality of life and longevity of sick animals, and to foster preservation of endangered species.





How long have you worked with IMMR? What does this collaboration mean to you?

My team and I have been lucky to have this partnership for 20 years. Our respective knowhows are very much complementary. Our Cardiology Department at Maisons-Alfort is indeed one of the largest veterinary cardiology units in Europe (several thousand cases per year). For animals that need cardiovascular interventional or surgical procedures, our team identifies the best course of action and we work with IMMR and use their advanced technical platform and skills to provide state of the art treatment. This wonderful collaboration between a university institution and a preclinical laboratory is unique and has allowed us to treat many pets, from 2 months of age to over 10 years and 600 g to over 50 kg! All of the veterinarians volunteer their time for this, and the Fondation Un Coeur sponsors some of the team members in charge of the preoperative, intraoperative and postoperative care, and pays for some of the medical devices that are implanted (pacemakers, stents, valves, etc). Some other foundations and device companies cover the costs of the device implants as well, which would be too expensive for pet owners. So really it is a beautiful cooperation to help give back to the animals for everything they have given us. Let me add that many students and residents have also greatly benefited from this, as they have been largely involved and have improved their skills and knowledge in cardiovascular imaging, surgery, anesthesia and critical care.

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Ida, the first owner's dog saved by transcatheter valve implantation (2019)

What was the most original case in which you performed a procedure?

If you mean the most "exotic," then by far it was the case of a snow leopard with a congenital pulmonic stenosis, which we treated by means of an interventional approach a bit more than 10 years ago. That was a first! The clinical improvement was dramatic as after treatment the panther could jump and run as she had not done in a long time. Helping this majestic and beautiful animal return to health was a childhood dream come true for all of us! Speaking of which, part of our activity supported by the Fondation Un Coeur is dedicated to wild felid (large cats) heart disease, which seems to be common, more than likely because of in-breading in those endangered species. At any rate, we have performed together many original procedures, many veterinary "firsts," not least of which were the world's first:

- Open-heart, beating-heart surgery in a dog with mitral valve stenosis
- Beating -heart mitral prosthesis implant for mitral dysplasia in a dog
- Totally minimally invasive canine PDA (patent Ductus Arteriosis) closure series
- Interventional procedure under intracardiac imaging guidance in a dog
- Echo-guided open-chest closed-heart mitral commissurotomy in a dog
- Rescue procedure for an embolized Amplatzer in dogs
- Implant of a stented pulmonary valve in a dog
- Repair of Cor Triatriatum Dexter under
- cardiopulmonary bypass in a cat and other firsts.



What is next for this IMMR-Cardiology unit of Maisons-Alfort Giving Back project?

Our collaboration has thrived over the past 20 years, helped by the tremendous improvements in imaging and cardiovascular treatments available through IMMR. We will continue this by simply doing more, offering those treatment options to more people and their pets, as well as to zoo animals, either with well validated treatments used in humans but adapted to animals, or novel devices. Our most critical project at this point is the treatment of degenerative mitral valve disease (DMVD) which is the most common cardiac disease in dogs. More than 16 million dogs in Europe and 80 million worldwide have heart disease, three quarters of which suffer from DMVD. Small dogs (Cavalier King Charles Spaniel, Dachshund, Poodles, Yorkshire Terrier, etc.) are 4 times more prone to this disease than large dogs. It can lead to congestive heart failure in the most severe cases, which is the second leading cause of death in older dogs after cancer. We want to be able to treat those dogs through an interventional procedure with the combined efforts of this "Giving Back" project and the support of medical device companies and other academic institutions and foundations, in hopes of prolonging the longevity and improving the quality of life of our four-legged companions.



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