

## Open-heart Surgery Information Sheet

Open-heart surgery is a general term for the surgical repair of congenital or acquired heart conditions performed during cardiopulmonary bypass (i.e. with the aid of a heart-lung machine). The open-heart surgery programme at RVC Small Animal Referrals, based at the Queen Mother Hospital for Animals (QMHA), under the direction of Professor Dan Brockman, is a service that has been developed at the RVC and other centres around the world, to provide treatments for a variety of heart defects or diseases that would otherwise be untreatable and usually fatal.

### Conditions managed by open-heart surgery

The following conditions have been successfully treated using open-heart surgery in dogs:

- Mitral valve repair
- Tricuspid valve repair
- Correction of pulmonic stenosis
- Correction of double-chambered right ventricle
- Correction of atrial septal defect
- Correction of ventricular septal defect
- Correction of atrioventricular septal defect
- Correction of tetralogy of fallot

### General considerations for open-heart surgery

The medical determination of whether open-heart surgery is indicated or possible for a dog is based on several considerations including the type and severity of heart defect/disease, the presence and severity of secondary cardiac changes (i.e. congestive heart failure, cardiac arrhythmias, heart muscle failure), the health of other organ systems (i.e. lungs, kidneys, liver, central nervous system), and the age of the patient.

Dogs considered for open-heart surgery should undergo complete cardiac evaluation by a specialist veterinary cardiologist. The final determination of whether open-heart surgery should be undertaken is made jointly between the dog's owner, the medical cardiologist, and the cardiac surgery team. In the final analysis, both medical and non-medical (financial, logistical, emotional, ethical and welfare) issues must be considered by the dog's owner.

The decision can be very emotional for owners because it almost always involves a life or death situation along with substantial financial resources. Nevertheless, owners should give very careful consideration as to whether open-heart surgery is a good idea for their dog, themselves, and their family.

### Current Specific Guidelines for Open-heart Surgery

**Mitral Valve Repair:** Experience with repair of the mitral valve has shown that dramatic results are obtained when the mitral valve is made more competent (less leaky). Even dogs in end stage heart failure can recover relatively normal cardiac function and will no longer require medical therapy. For more information please see the separate information sheet on mitral valve repair.

**Tricuspid Repair:** We are also keen to perform tricuspid valve repair in dogs with congenital valve dysplasia because it offers the best chance for dogs with right heart failure associated with tricuspid dysplasia, to live. There is less evidence that this operation is as successful as repair of degenerative mitral

valves but in the small number of patients we have operated on, there has been substantial improvement in valve function and most dogs are improved as a result of surgery.

**Congenital Heart Defects:** Open-heart surgery can be considered for a variety of congenital heart defects in dogs including atrial septal defect, ventricular septal defect, pulmonic stenosis, double-chambered right ventricle, tetralogy of Fallot and some patients with subaortic stenosis. The general indication for open-heart correction of congenital heart defects is that they are hemodynamically significant (determined by medical cardiologist based on cardiac evaluation). In general, open-heart correction of congenital septal defects is undertaken with curative intent. Ideally, dogs should be at least five months old before undergoing open-heart surgery and be free of other life-shortening congenital defects.

### **Non-Medical Considerations**

**Cost:** The estimated total medical fee (preoperative evaluation, surgery, care after surgery) for open-heart surgery is to be determined depending on surgery and postoperative course. The cost of this procedure is £23,500 excluding pre-operative and post-discharge consultation and diagnostic fees. Additional owner costs include travel to and lodging near the Royal Veterinary College, during the time of surgery.

**Duration:** Final preoperative evaluations are scheduled the week before the surgery date. Surgery is performed the following Monday. The length of surgery is about 3 to 4 hours. Most dogs are able to leave the hospital usually within 7-10 days.

**Aftercare:** Aftercare following open-heart surgery is minimal. Dogs will be walking and eating by the time they leave the hospital. Periodic follow up cardiac evaluations with the medical cardiologist will be required after surgery. Most dogs will require some medications for a period of time after surgery.

### **Scheduling Open-heart Surgery:**

1. All dogs should undergo a complete cardiac evaluation by a medical cardiologist, prior to any consideration for open-heart surgery. This information (full medical history, radiographs, blood work, echocardiography report and echo images) should be sent to the RVC via the [gmhaheartsurgery@rvc.ac.uk](mailto:gmhaheartsurgery@rvc.ac.uk) email address.
2. After careful consideration of the above information, the cardiothoracic surgery team will discuss the relevant case date in our weekly multidisciplinary case conference (medical cardiology and, surgery teams) to discuss the intended surgical procedure. Following this, the owner/caregiver and referring cardiologist will be contacted to discuss the outcome of the multidisciplinary case review.
3. If, after consideration of all the medical and non-medical issues, it is determined that open-heart surgery is appropriate, then the patient will be entered onto a waiting list for surgery and possible dates for surgery will be discussed with the owner (see information sheet regarding “deposit for surgery” and “heart surgery: owners info sheet”)

### **Checklist of information required for consideration for open-heart surgery:**

- Body weight, age, gender, and breed of the patient.
- Full medical history, especially that pertaining to episodes of congestive heart failure.
- Echocardiography video and still images of the affected valve/defect.
- M-Mode echocardiography data ± flow velocities where indicated.
- Complete blood count and serum chemistry panel (urine analysis and blood type can be performed once the surgery is confirmed).

This cardiac surgery programme was made possible by the generous private donation of equipment.

## Reading:

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### HOW TO CONTACT US

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A member of the heart surgery team will respond within 72 hours.