

Understanding Your Pet's General Anesthesia at Interbay Veterinary Care Center

"There are no safe anesthetic agents; there are no safe anesthetic procedures; there are only safe anesthetists." - Robert M. Smith, MD



There are numerous ways of approaching general anesthesia in both human and veterinary medicine. All of these methods are effective in inducing and maintaining a state of unconsciousness in the patient, but this does not mean that all of these methods carry the same margin of safety. Since this is the case, then why are these methods still used in veterinary practice? The answer is simple – they are used because they reduce cost, are easy to perform, and require no doctor/staff continuing education.

This is very different from the way that human medicine is practiced, where choosing one method when there has been a safer option established, is below the standard of care. Unfortunately, this does not hold true for veterinary medicine, as we have a very poorly established legal standard of care. Thus, veterinarians have extensive freedom to practice medicine and conduct procedures anyway that they like. That being said, we do have a high ethical standard of care within our profession, which is what drives us here at Interbay Veterinary Care Center to address general anesthesia, as well as all of your pet's medical care, with the most current and safest approaches possible. We formulate a specific anesthetic protocol for each patient's individual medical needs, while never skimping on the central, core practices that are essential for the safety of all anesthetic procedures, as advised by the board-certified specialists in veterinary anesthesiology.

Our Specific Approach to General Anesthesia:

- **Labwork:** Blood and urine evaluation is necessary prior to anesthesia for all patients. These tests help us to evaluate your pet's overall health, identify any disease processes that should be addressed prior to anesthesia, and allow us to determine the safest anesthetic protocol based on any individual circumstances.
- **Fasting:** We ask that you withhold food (but keep water available) after 10pm the night before anesthesia so that your pet's stomach is empty when he or she is anesthetized. This is

done to prevent the possibility of aspirating food material into the lungs if a pet vomits or regurgitates while being anesthetized. Once the endotracheal tube (see below) has been placed, your pet's lungs are protected from the risk of aspiration and resulting pneumonia.

- Arrival: We ask that you have your pet here between 6:30-8:30am. This enables us to place an IV catheter and start IV fluid therapy (see below). It also gives your pet time to adjust to being here with us before their procedure begins. If you are unable to give the antibiotic that morning, please bring it in with you.
- IV Catheter & Fluid Therapy: Your pet will receive an intravenous catheter, and IV fluids will be started prior to anesthesia. Arriving here early in the morning allows us to initiate fluid therapy well in advance of anesthesia, maximizing the benefits of fluid administration. Providing IV fluids allows us to maintain your pet's normal blood pressure (see below) and is the most important step that we can take in safeguarding him or her from anesthetic complications.

The benefits of IV fluids include:

- sustaining and improving hydration
- maintaining healthy blood pressure & blood volume
- ensuring continuous blood flow to all tissues
- protecting the heart, brain and kidneys from irreversible damage
- providing safe, stress-free venous access for medication administration

Your pet will receive intravenous fluids throughout their stay with us. IV fluids given before and during the anesthetic procedure protect against anesthetic complications, while IV fluids given in the post-anesthetic period facilitate the excretion of anesthetic medications, helping to speed recovery.

- Pre-Anesthetic Exam: Just as your doctor would examine you before you are anesthetized, your pet will receive a full examination (not just a quick check of vital signs) before the procedure to ensure that it is still safe to undergo anesthesia. Pre-anesthetic examinations are especially important for the 4-legged members of our family since they cannot tell us if they are feeling unwell.
- Pain Control (Analgesia): Ensuring your pet's comfort at all times is of utmost importance to us. The best approach to pain control is the use of pain medication *prior* to the onset of pain, to prevent the sensation of pain from occurring at all. As such, before being anesthetized, your pet will receive an injection of pain medication. Moreover, even though the patient cannot feel pain when they are unconscious via general anesthesia, painful stimuli that occurs during surgery and dentistry does activate the nervous system, requiring higher doses of general anesthesia to keep the patient at an appropriate level of unconsciousness. Thus, by using appropriate pain control medications, we are able to use lower dosages of general anesthetic agents, thereby decreasing the risk of side effects from these anesthetic drugs.

- Additional pain control options will be discussed with you based on the type of procedure that is being performed for your pet. Such options include injections of pain medication after the procedure is over, intra-operative local anesthetic blocks (using injections of local anesthetic to numb the nerves associated with a painful area), constant rate infusions of pain medication through the IV catheter, analgesic patches that are worn on the skin, and/or oral pain control.
- The modern pain medications that we use are extremely safe and very effective. At Interbay, we do not consider pain to be acceptable, and we utilize a proactive and preemptive approach to pain control so that our patients are never uncomfortable.
- Anesthesia: Our anesthesia protocol includes four distinct stages, and administration of anesthesia at Interbay is *only* performed by the veterinarian and licensed veterinary technicians.
 - Stage 1 is the pre-treatment administration of pain medication, as discussed above.
 - Stage 2 involves the injection of a short-acting anesthetic, which allows us to safely place an endotracheal tube (termed intubation). This is a tube that is placed from the mouth into the trachea through which your pet breaths oxygen and the inhalant anesthetic, isoflurane (see below). General anesthesia cannot be safely performed without the placement of an endotracheal tube.
 - Stage 3 is the main stage of anesthesia and is when the procedure (surgery, dentistry, etc) will be performed. During this stage, your pet remains anesthetized by breathing a mixture of oxygen and isoflurane. We use isoflurane because it is one of the safest inhalant anesthetic agents available.
 - Stage 4 is the recovery period, which is when your pet is woken up from anesthesia. Even though the patient is no longer breathing isoflurane at this stage, the recovery period is a critical point in the anesthetic process. It has been reported that the majority of canine and feline anesthetic complications occur during the recovery period. For this reason, it is crucial that your pet be cared for during this period by properly trained, and prepared, veterinary professionals. One of our licensed veterinary technicians will be monitoring your pet closely to assure that they recover properly and safely.

Also during this stage, the endotracheal tube is removed (termed extubation), once the patient is awake and breathing normally. The proper timing of extubation is critical and so must be performed by a veterinary technician or veterinarian. Pre-mature extubation increases the risk of recovery complications, such as aspiration pneumonia or respiratory arrest, while leaving the endotracheal tube in for too long can traumatize the throat and airways.

The simple fact that your pet wakes up from anesthesia does not imply that the anesthesia was performed correctly, or safely. Inappropriate anesthetic protocols used on your pet can not only result in immediate medical problems, but will have significant and permanent effects on his or her overall long-term health. At Interbay, we perform anesthesia correctly, using only thorough protocols and the safest anesthetics, for the well-being of your pet.

- **Anesthetic Monitoring:** While under anesthesia, your pet's vital parameters will be monitored by a licensed veterinary technician using equipment similar to the devices used in human hospitals. Such parameters include heart rate and rhythm, pulse strength, respiration, blood oxygen level, end-tidal CO₂ level, body temperature, blood pressure and general depth of anesthesia. This vigilant monitoring allows us to detect and react quickly to any changes that may occur while our patients are anesthetized. Close monitoring continues after the procedure until your pet goes home, to make sure that he or she is recovering properly.
- **Ocular Protection:** Once your pet has been intubated, a sterile lubricant is placed on the surface (cornea) of each eye. This prevents drying of the eyes, and subsequent ulceration, due to the fact that while anesthetized, the patient's eyes often remain open and they are unable to blink.
- **Maintaining Blood Pressure:** Even with IV fluid therapy, some patients, particularly cats and small dogs, experience an unhealthy decrease in blood pressure (termed hypotension) during anesthesia. Hypotension is the most common anesthetic complication, yet it is routinely overlooked or dismissed. This will never be the case at Interbay. If hypotension occurs, we will start your pet on an IV medication that will help to normalize blood pressure quickly. This is crucial as untreated hypotension can lead to irreversible organ damage and even shock as the body's tissues become starved for oxygen and other nutrients. The blood pressure medication is given continuously through the IV catheter (termed a continuous rate infusion or CRI). The benefit of using a CRI compared to a single injection is that the medication can be rapidly and easily titrated to meet the changing needs of the individual patient.
- **Thermal Care:** All patients, especially cats and small dogs, lose significant body heat while under anesthesia. The resulting hypothermia profoundly impacts heart function, overall metabolism and recovery from anesthesia. We avoid this by continuously monitoring our patient's body temperature and all patients are actively warmed with a recirculating warm water pad and/or a warm air blanket as needed. Our surgical table is also heated, and we can adjust this heat to meet the patient's needs at any given point in time. We do not use conventional electric heating pads because they can cause severe burns.
- All of our anesthetic equipment is of the highest quality, is modern and well-maintained, checked prior to every procedure, and cleaned thoroughly between procedures. Thus, we are ensuring that the highest levels of hygiene, function, and preparedness are achieved.

- General anesthesia is never risk-free. However, that risk can be greatly minimized, if the proper measures are taken to do all that is available for your pet's protection. Our doctors and team are dedicated to providing safe, thorough, modern and professional care for our patients. Our primary responsibility is to our patients' health and well-being, and we take that responsibility extremely seriously. We understand that you are entrusting the care of your beloved companion to us. We never forget that our patients are your pets.

Please do not hesitate to call us to discuss any of the above information and/or any other aspects of your pet's healthcare.

Sincerely,
Your Interbay Veterinary Healthcare Team

Next to their pet's safety, the biggest concern that many pet owners have is the cost of veterinary health care. As you can see, professional, safe, and modern anesthesia involve a significant amount of expertise, time and specialized equipment. Many veterinary clinics offer less expensive anesthesia but they are lowering costs at the expense of your pet's health and medical care. Cutting corners by not intubating patients, not keeping patients warm, skimping on pain medications, neglecting anesthetic monitoring, permitting hypotension, or having untrained personnel caring for your pet, can save money, but the real price is decreased comfort, health, and safety for your pet.

We only provide properly-performed veterinary anesthesia, which is the only protocol that your pet would choose, if given the choice.

~ Caring For Pets And The People Who Love Them ~

