

Think back to the first job that you wanted to be once you were a grown up: a fire fighter, a chef, a singer, a doctor. The dreams that you created when you were a child have the potential to become reality if you continue to aspire and chase after them. Persevering to reach the light at the end of the tunnel – I can tell you it truly pays off in the end. How do I know that? Four years of undergraduate education at Queen’s University, four years of veterinary school at Ontario Veterinary College, one year of an internship at VCA Canada 404 Veterinary Emergency and Referral Hospital, and three years of a residency at the University of Tennessee College of Veterinary Medicine, as well as passing two big exams, you will be talking to a boarded veterinary anesthesiologist.

So, what does that mean? In short, I administer medications to animals big and small for various reasons – from something simple as a physical examination and bloodwork on a tiger, to something more urgent as a surgery to help a dog that was hit by a car and sustained life-threatening injuries. The field varies from immobilizing or sedating the animal, to putting the animal under general anesthesia, in order to get the job done. What’s even crazier is the animal can range from a small leopard gecko, to a humongous bull elephant. There are many factors to consider, including the health of the animal, ensuring the safety of the animal as well as the staff, the facilities and equipment you have, and the medications available at your disposal.



Performing anesthesia on a black bear cub.

In the veterinary world, every species is unique to its physiology and anatomy, and it is important you are aware of its adaptive mechanisms. Unfortunately, we cannot assume that a cat acts like a small dog. Reptiles have three-chambered hearts, but crocodiles have a four-chambered heart, similar to mammals. When horses get up after lying down, they lunge forward and use their head for momentum to bring themselves up; cows, on the other hand, get up on their “knuckles” and do not need to lunge forward. Rabbits have a special molecule within their body that allows them to metabolize a certain type of drug faster than other species; as a result, they are immune to the effects of that drug. Bulldogs and pugs are more prone to breathing problems compared to other dogs, based on how they are bred. Aside from all the trivial facts we need to have in our back pockets, there are also other questions to consider: How would you give an injection to a turtle? How would you give an injection safely to a jaguar that is snarling at you in her cage, making sure you and your staff are not injured in the process? How would you maintain anesthesia and perform surgery on a koi?

Similar to a human doctor, animals can come in to see the veterinarian for a variety of reason – an annual check up, vaccines, not eating, diarrhea, fleas, not acting like themselves. Unfortunately, we cannot understand how the animals are feeling, and so we rely on the people who spend a lot of time with them (handlers or owners) for us to deduce what may be wrong. Performing a thorough history and physical examination can be enough for a veterinarian to generate possible differentials for the cause of the animal’s illness. Sometimes, diagnostic tests may need to be performed – such as bloodwork, x-rays, urinalysis, CT scan, MRI, etc. However, we cannot simply ask the dog to stay completely still, holding a certain position, and to also hold its breath while we take an x-ray. We cannot tell the cat to lie on its side while we draw some blood. We cannot even tell the ferret to go pee into a cup and bring it back to us! Some animals may be complacent to let us perform our diagnostic tests by physical restraint, but others may not. Animals, unlike most humans, may not understand why they are coming to an unfamiliar environment with weird smells, bright lights, and people in white coats who pet them differently than family members at home. Some animals may become scared, and as a result, may protect themselves by choosing to bite. For those times, we use medications to help sedate and calm the animal, or place the animal under general anesthesia, to facilitate these diagnostic procedures – in order to minimize any risk of anyone getting hurt, minimizing any unnecessary radiation exposure, or other reasons.



Armadillo that went through a CT scan to monitor her dental disease.

Administering anesthesia involves placing the animal in a state of unconsciousness. The body is amazing in that the heart continues to pump blood, and the basic life supports continue. We often will use various monitors to ensure the animal’s vitals stay within normal limits during the anesthetic duration – measuring heart rate, heart rhythm, blood pressure, temperature, and others. Having as much information on the body’s vitals may give us a clue when things may be trending towards a problem. If the surgeon hit an artery and there is increased blood loss, we can see this via changes on the monitor as the body tries to compensate. If the animal suddenly feels pain during the surgery, we can see this via changes on the monitor as well. When we see these changes happen, we can also help correct them too. We can give medications to support the heart rate and blood pressure if they start to fall out of the range. We can provide ventilatory support if the animal stops breathing in the middle of the procedure. We can predict what the next steps the body will take, and we can provide medications to help. We essentially become the animal’s brain to ensure the body stays within normal limits, because the brain is unable to do so under anesthesia.



Monitoring equipment placed on an animal to monitor its vitals under general anesthesia.

Lastly, once the procedure is done, whether it is performing x-rays or an intensive surgery, we start the recovery period, where the animal regains consciousness. The recovery period can be dangerous because there are so many potential problems that cannot be predicted. A friendly dog can become aggressive instantly once it awakes because it may not understand what happened, and its first instinct is to bite. Prey species, like horses, will want to get up as soon as they are awake, because they know in nature, if they are lying down, they will be dead meat. However, the medications we administer to the animals will not have worn off completely, and the animals will assume a “drunk” and staggered behaviour. They may hurt themselves in the process of figuring out their surroundings. Because they are not their 100% self, it is important we are aware of their safety, while also making sure we do not get hurt in the process. Animals may not realize we are restraining them for their safety, and they may kick or bite us. Recovery periods can vary from a very stable time with no injuries, to thrashing around and leading to fractures. Especially when dealing with wild animals, most often we will ensure our safety and may place the animal in the enclosure earlier than we would if it was a domesticated animal.

There are so many things to learn, and everything that has been explained so far only scrapes the tip of the iceberg. If there is one thing I would want you to take away from this, it is to never stop learning. There is so much to see and so much to absorb that this world offers, no matter what field you choose in the future. I will be thirty-years-old when I have finally achieved my dream, and I know I will be excited to see what else my future will hold after that. Nobody said life would be easy, they just promised it would be worth it.

Natalie Chow  
Graduate from Wesley Christian Academy 2004