



Catherine Dean BSc RVN

The author spent two weeks volunteering for The Nest Te Kōhanga, Wellington Zoo, whilst travelling in New Zealand. Catherine graduated from the Royal Veterinary College in 2013 and is now employed by Davies Veterinary Specialists, Higham Gobion. Her interests include anaesthesia, surgical and critical care nursing.

Wildlife and zoo nursing at The Nest Te Kōhanga (Wellington Zoo Hospital)

Catherine Dean BSc RVN

Davies Veterinary Specialists Ltd, Manor Farm Business Park, Higham Gobion, Hertfordshire SG5 3HR, UK

ABSTRACT: This is a review of volunteering as a veterinary nurse at The Nest Te Kōhanga, Wellington Zoo, with the focus on conservation, sustainable practices and the difficulties that come with zoo and wildlife nursing in terms of evidence-based research. Many similarities can be found between the job roles of a small animal veterinary nurse and a wildlife or zoo veterinary nurse, and these are discussed.

Keywords: conservation; wildlife health; sustainability; exotic species; zoo veterinary nurse; volunteer work

Wellington Zoo's stance on conservation and sustainability

New Zealand has exceptional biodiversity, especially when it comes to birds. They have evolved in isolation there for over 80 million years, without contact with mammals. Many of these species are fairly defenceless and are now endangered, mainly due to predators, including ferrets, stoats and possums, that have been subsequently introduced to New Zealand.

Many New Zealanders are involved with conservation efforts to protect and preserve endangered species and their habitats. Wellington Zoo is at the forefront of conservation efforts both locally and worldwide. The institution is committed to saving, not only wildlife, but wild places as well, through their conservation initiatives and sustainable practices (Wellington Zoo, 2015). The Zoo has its own well-equipped veterinary practice onsite, The Nest Te Kōhanga (TNTK), which treats the full range of animals in the zoo collection as well as a variety of other native species. Te Kōhanga means 'The Nest' in the native Maori language.

Wellington Zoo is the first zoo in the world to become carboNZero certified, through increasing efforts to reduce the amount of waste sent to landfill, reducing

energy and water use, and offsetting carbon emissions by planting forests. CarboNZero is an internationally accredited greenhouse gas reduction certification programme. The animals in the collection are still cared for to the highest standards as you would expect.

In addition, Wellington Zoo encourages the community to get involved with sustainable practices, such as buying paper and wood from sustainable sources, buying palm oil products that are clearly labelled as 'deforestation free' and adopting the principle of Reduce, Reuse, Recycle. **Box 1** shows ways your practice could adopt more sustainable practices.

Box 1. How to incorporate sustainable practices in veterinary nursing

- Wash towels and bedding in correct-size load, with eco-friendly detergent, and hang out to dry in good weather.
- Sterilise equipment using tins or linen drapes to reduce waste from autoclave bags.
- Only sterilise equipment when the autoclave is full.
- Use towels to dry hands instead of paper towels.
- Clean cages with reusable cloths instead of paper towels.

- Recycle paper, plastics, cans and glass from offices and kitchens where possible.
- Turn off appliances when not in use.
- Turn off lights in rooms that are not being used, or install sensor-activated lights.
- Install solar panels.
- Improve insulation in the building.
- Collect and use rainwater for toilets and watering gardens.
- Walk or cycle to work where possible; use public transport or car-share.

The Nest Te Kōhanga

As previously stated, TNTK also treats native wildlife which is brought in by various conservation groups and the wider community. In 2015, they treated over 400 native birds, many of which were critically endangered species.

The outcome for the birds depends on the severity of their illness or injuries, with many being rehabilitated and released. The birds that would be unable to survive in the wild remain at the Zoo or are placed in sanctuaries and others are euthanased on welfare grounds. Those that are kept in human care will become ambassadors for their species. For example, Wellington Zoo has Little Blue Penguins and Kiwi in their collection that, due to loss of limbs or eyesight, among other reasons, would not survive in the wild. These animals lead healthy and safe lives at the Zoo, and help people in the community connect with animals and get involved with conservation efforts locally and worldwide.

Sustainable practices are adopted at TNTK which aim to reduce the impact on the environment, whilst still caring for the animals to the highest standard. For example, surgical kits are sterilised using an autoclave, but reusable drapes are used to wrap kits and the autoclave is only used when it is full. They also try to reduce their usage of consumable items, such as syringes, by reusing them for oral medications: they are hygienically washed, dried and added back to the stock, ready to be reused in this manner. Any medication required by the subcutaneous, intravenous or intramuscular routes will be administered using new syringes and needles. This process is not only cost effective for treating the wild birds, but also reduces waste sent to landfill.

A typical day at The Nest Te Kōhanga

Although there is a lot of variety when working with wildlife and zoo collections, the day generally follows a routine. The veterinary team start with a brief meeting, where they plan and coordinate any treatments or health checks required. Next, the patients under the care of the veterinary surgeon are treated. This includes many native species that have been brought in by the community or local conservation groups as well as any individuals from the zoo collection that are hospitalised. The nurses are heavily involved with medicating, feeding, changing bandages and providing enrichment for the patients, much like the role of the RVN in the UK. The main differences lie with the particular patients, and their individual needs, which will vary greatly between species, even if they look similar from the outside! The nurses at TNTK had a high level of knowledge of the species that may be presented to them.

TNTK organises a treatment every morning that visitors are able to watch through large glass walls. This could range from a health check to specialist surgery. Visitors are able to ask questions during the procedure, which is definitely a useful tool to engage their interest in wildlife health, conservation and the roles of the veterinary surgeon and veterinary nurse. These procedures are often performed using general anaesthesia to immobilise the patient, mainly for the safety of the staff, but also to reduce stress to the patient. The nurse will monitor the anaesthetic and provide the veterinary surgeon with the equipment required for the procedure.

If zoo keepers have observed problems with their animals, the veterinary surgeon will visit the habitat to assess the animal and decide upon the best plan of action. Treatment will often be conservative at first (unless an emergency) for many reasons, including reducing stressful experiences, the animal's temperament and ranking in its social group.

The afternoon consists of treating the patients in the native wards again and treating any new patients that may have been brought in during the day.

The nurses at TNTK are also responsible for many of the routine jobs of an RVN, including stock management, organising rotas and work experience, coordinating procedures and ensuring the day runs smoothly.

Transferable skills

Many of the roles that the RVN undertakes in zoo or wildlife nursing are similar

to those of the small animal nurse. The general principles of many skills or tasks remain the same, including radiography, monitoring anaesthetics, medicating, preparing food, record keeping, etc. The biggest difference is the variety of patients seen, and knowing their varying individual needs in terms of handling, treatments and anaesthesia (Figures 1 and 2).

Pushing the boundaries of zoo medicine

With zoo medicine covering so many species, evidence-based nursing can be difficult, as there is limited research and few



Figure 1. A Little Blue Penguin undergoing a general anaesthetic for a health check, positioned in dorsal recumbency for survey radiographs; a Doppler probe is placed in the oral cavity on the upper beak to give an audible pulse rate. The penguin was intubated to allow the use of capnography and also in case of emergency



Figure 2. Sun Conure positioned for radiographs



▲ **Figure 3.** Cara being prepared for surgery in the preparation area, which has large glass windows to allow the public to be able to view the procedure



▲ **Figure 4.** Cara in theatre post-TECA; monitoring equipment includes capnography, pulse oximetry, invasive and non-invasive blood pressure monitoring, temperature, blood gas analysis

published case studies concerning certain species and conditions. For example, during my time at TNTK, a total ear canal ablation (TECA) was performed on a chimpanzee called Cara, who had been suffering from chronic ear infections. She had previously had a TECA on the right side, so to remove the left side too was a first for any zoo. There was debate for a long time over the best course of treatment for Cara, and it was decided that it would be best for her to remove the source of chronic pain. She

was a low-ranking chimpanzee, often seen babysitting, so it was likely that she would fit back into the group relatively easily.

The procedure required lots of planning and organising to make sure that it ran smoothly and that the general anaesthetic would be as short as possible. A human ear, nose and throat specialist, along with her dedicated scrub nurse, performed the procedure. New Zealand has very few specialist veterinary surgeons, and with the anatomy of a

chimpanzee being similar to that of humans, the surgeon was comfortable performing the procedure. Anaesthetists from Massey University were in charge of the anaesthetic, alongside Wellington Zoo's veterinary team who, along with the keepers, were in charge of getting Cara anaesthetised safely in the chimpanzee habitat hospital den, using a single dart containing ketamine (Ketaset, Fort Dodge) 3mg/kg and medetomidine (Domitor, Pfizer) 0.05mg/kg, via the intramuscular route. They then placed an intravenous catheter and inserted an endotracheal tube. The intravenous catheter was placed before the endotracheal tube so that intravenous anaesthetic agents could be given to deepen the level of anaesthesia quickly, for the safety of the staff working with Cara. She was then attached to the portable breathing system and moved to the truck for transport to TNTK.

Cara was prepared for surgery in the preparation area (**Figure 3**), and then moved to theatre for surgery (**Figure 4**), all of which could be viewed by the public. Once the procedure was complete, she was transported back to the chimpanzee habitat hospital den under general anaesthetic using the portable breathing system.

Once safely in the chimpanzee habitat hospital den, her intravenous catheter was removed, she was hand ventilated using an Ambu bag and her endotracheal tube was removed when her swallow reflex returned. Then staff immediately removed themselves from the den and monitored her through the door for their own safety. Cara had a smooth recovery, and several days after the surgery was reintroduced into her group with relative ease.

Conclusion

Overall, the experience was extremely rewarding, yet challenging. Many aspects of nursing at the zoo were similar to being an RVN in a referral hospital in the UK, with their modern practice and equipment. Since working at the zoo, I am much more conscious of making eco-friendly decisions, whilst still maintaining high standards of nursing care. The nursing team were often very creative in order to make the equipment fit to the wide variety of species and I hope that I can incorporate those skills of creativity and flexibility into my nursing.

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Reference

Wellington Zoo, 2015, <https://wellingtonzoo.com/conservation/saving-animals-in-the-wild>