Collect everything you need prior to starting:

- Appropriate sized mask
- A range of ET tube sizes (uncuffed)
- Lacrilube/viscotears
- Towel to restrain the bird
- KY jelly to lubricate tube
- T-piece or mini lack circuit

This document describes gas induction of a wild avian patient for anaesthesia, injectable induction methods can also be used. In wild birds due to the stress associated with each handling event, premedicants are not used routinely but may be included where needed such as for planned surgical procedures.

These are guidelines suitable for most common species, but note that some avian anatomical variations will alter the techniques required.

The risk of regurgitation under anaesthesia in birds varies along with a number of factors. Intubation under anaesthesia reduces the risk of aspiration in the event of regurgitation. Key points are:

- Birds of prey and piscivorous birds such as gulls are prone to regurgitation and should be starved for several hours, or overnight, prior to induction.
- For any bird being given liquid support diets or oral hydration, it is essential the crop has emptied prior to induction as there is a very high risk of aspiration in the event of regurgitation. This includes juveniles on liquid rearing diets.
- Small birds and juvenile birds are at risk of developing hypoglycaemia and prolonged periods of starvation must be avoided. It is sufficient for the crop to be empty on palpation.

(1) Gently restrain the bird in your hands or wrapped in a towel to prevent the wings flapping. A second person to hold the bird is helpful, and likely to be necessary in larger birds or birds of prey. For some birds masks may need to be adapted to fit the beak anatomy.

Small birds can be anesthetised in an induction chamber or an upturned clear mask.

Ensure the entire beak is inserted into the mask creating a good seal - you should see the bag inflate. For smaller birds adapting a mask by replacing the diaphragm using a glove secured with tape with an appropriately sized hole cut out can help create a good seal.

(2) Turn the oxygen dial on to an appropriate flow rate (1l/min is suitable for small and medium species) and the Isoflurane vaporiser to 5%.

Whilst continuously monitoring the patient, keep the bird restrained until it is no longer moving and is anaesthetised. This may take a few minutes and will generally occur faster than in a mammalian patient due to the highly efficient nature of the avian respiratory system.

(3) Once the bird is anaesthetised (there should be no response when you perform a toe pinch), turn off the oxygen and the vaporiser and flush the circuit before removing the mask.

The bird should then be intubated if possible, this is usually straightforward for birds pigeon sized and above. Open the beak fully and visualise the glottis at the base of the tongue, which is easily visible due to lack of epiglottis. Pulling the tongue forward can aid visualisation.

(4) Apply a small amount of KY to lubricate the tube, keeping it away from the end of the tube so it does not occlude it. Gently insert the tube into the open

glottis making sure the tube fits well but is not tight. The tube should be uncuffed due to the increased risk of mucosal damage in avian patients due to their circular tracheal cartilages.

Example sizes typically used for adult birds include:

Feral pigeon size 2 to 2.5

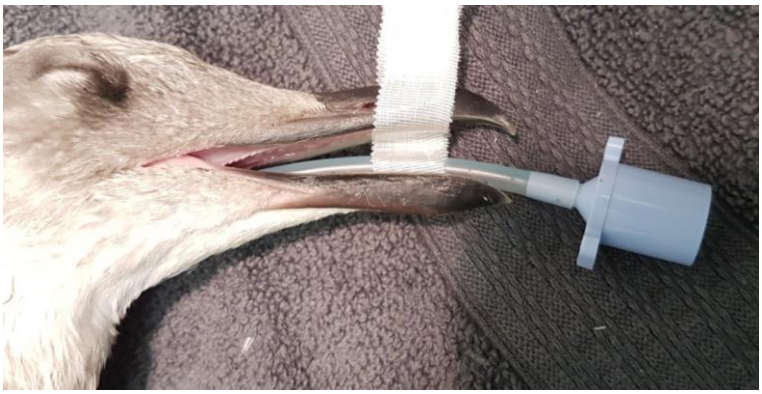
Wood pigeon size 2.5 to 3

Tawny owl size 2.5 to 3

Herring gull size 3.5 to 4

For birds with short beaks, ETT which have been shortened from their original length are used to minimise dead space.

(5) Secure the tube to the beak using tape. Ensure the tape is securely attached to both the tube and the beak. Place a small drop of ocular lubricant into each eye.



(6) Attach the ET tube to the anaesthetic circuit and turn the oxygen back on. Typically an isoflurane level of 2% is sufficient for maintenance of anaesthesia,

but this will require adaptation based on monitoring of the bird's depth of anaesthesia.

Regularly monitor breathing (chest and bag movements) and start gentle IPPV if breathing stops. Hypercapnia can occur extremely rapidly in birds in the event of apnoea. It is important to ensure both the bag and chest are moving as small ET tubes can get blocked with secretions. If this occurs, change the ET tube.

Monitoring of the heart rate, palpebral and corneal reflexes and toe pinch reflex are also used to monitor anaesthetic depth.

(7) Where possible, keep the bird in lateral or ventral recumbency to aid respiration and ensure the risk of hypothermia is minimised by using a suitable heat mat.

Depending on the procedure length and condition of the bird, it is also generally advisable to administer warmed subcutaneous fluids (depending on staff experience). 10mls/kg can be given in the skin of the inguinal fold or another appropriate site.

(8) Recovery - Turn off the vaporiser and flush the circuit. If the bird is breathing well, turn off the oxygen and disconnect from the circuit, allowing the

bird to recover on room air whilst continuing to be closely monitored. Remove the tape securing the tube but keep the bird intubated until it starts to move.