



A Basic Introduction to Backyard Poultry Medicine

– Part 2 of 3: Clinical examination, emergency treatment, and clinical techniques

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Clinical examination

Weighing and body condition scoring:

Every bird presented for clinical examination should be weighed and have its weight recorded. Bodyweight is often a good indicator of response to treatment. A historical body weight can be very useful for comparison to the current weight.

Body condition scoring is not an exact science. The most commonly used parameters are the size of the pectoral musculature and protuberance of the keel (Figure 1).

Score	Pectoral musculature	Keel	Nutritional condition
1	Little muscle cover with concave profile	Prominent Ridge	Cachectic
2	Little muscle cover but flat profile	Keel palpable above muscles	Skinny
3	Moderately developed muscle cover with convex profile	Keel level or just above muscle	Optimal
4	Well-developed bulging muscle cover	Muscles over keel	Overweight
5	Convex profile over keel area	Fat tissue extending up over the keel and pectoral muscles	Obese

Figure 1: Body condition scoring for laying hens

Clinical examination:

Prior to the clinical examination, a visual assessment of the patient should be undertaken. At a distance, the wings, head and body posture, and breathing pattern (rate and depth) should be observed. Locomotion should also be evaluated. The general level of consciousness of the bird should be assessed.

A brief clinical examination should include the following:

- Check for bleeding.
- Observation of the breathing pattern.
- Check for discharges.
- Check vent and whether pasting of droppings around the vent is present.
- Assess stance, gait, wing and head posture.
- Assess overall feather condition.
- Check for any swellings.

A routine examination should be methodical and systematic and should include examination of the head, eyes, ears, beak, nares, comb & wattles, oral cavity, neck, crop, feathers & skin, limbs, and vent.

Although birds often show outward signs of respiratory disease, it is important to auscultate the trachea, lungs, and thoracic and abdominal air sacs. A paediatric stethoscope is best. The stethoscope is placed just ventral to the notarium and then moved caudally on either side to allow evaluation of the lungs as well as the air sacs. Increased expiratory sounds are often associated with pathology of the lower respiratory tract, whereas increased inspiratory sounds are often associated with pathology of the upper respiratory tract.

A specimen of droppings should be assessed as part of the routine examination. In birds, urine and faeces are voided together. Urine is a combination of the white material in the droppings and the clear fluid sometimes seen around faeces. The presence of blood, mucus or any pseudomembranous material is abnormal. It may originate from the reproductive tract, cloaca or there may be a haematuria. The presence of black, tarry faeces is an indication of bleeding from the small intestine or more proximal areas of the GIT.

Emergency treatment

When the bird is presented at the veterinary practice, the initial visual assessment should be brief and aimed towards evaluating whether the patient is stable enough for a full examination.

It is necessary to start immediate stabilization of any bird showing the following clinical signs:

- Hypothermia
- Dyspnoea
- Bleeding and hypovolaemic shock
- Collapse
- Severe obvious pain (fractures and other traumatic injuries; prolapse; distended coelomic space or crop; egg binding)

If the debilitated bird is admitted to the practice, it should be accommodated under ideal conditions as it may decline very rapidly. In order to minimize stress, the environment should be warm, dimly lit, quiet, away from the sight and sound of predatory animals and free from unnecessary cage furniture (e.g. perches, toys, bowls) that the animal may harm itself on.

Hypothermia:

Hypothermia should be diagnosed and rapidly corrected. The bird should never feel cold to the touch, although distal limbs may be several degrees cooler than the core body temperature. A wet or fluffed-up bird should raise the suspicion of hypothermia. The temperature should be set at approximately 25-36°C, depending on the species and degree of hypothermia.

Dyspnoea:

Open mouth breathing, changes in mucous membrane colour, respiratory noises, and full body movement during inspiration or expiration may indicate that the patient is hypoxic and should immediately be provided with oxygen-rich air.

Fluid therapy:

The main objective of fluid therapy is to correct fluid deficits and provide for daily maintenance requirements. Fluids should be warmed to body temperature before administration. The fluid deficit is estimated using the following equation:

$$\text{Estimated dehydration (\%)} \times \text{Bodyweight (g)} = \text{Fluid deficit (ml)}$$

Fluids (both crystalloids and colloids) may be administered via enteral, intravenous, or intraosseous routes. Subcutaneous fluid administration is not ideal due to the very small subcuticular space. Fluid administration into the coelomic space is contraindicated in birds due to the presence of air sacs. Fluids are more commonly delivered in boluses due to the difficulty in protecting the infusion line.

Nutritional support:

Enteral nutrition support should be provided as soon as the hypovolaemia has been corrected and is indicated in birds that have a functional GIT, are not severely dyspnoeic and are conscious enough to avoid crop reflux.

Clinical Techniques

Administration of medication:

Medication can be administered orally – either directly or via food and drinking water. Direct oral medication is preferred when dealing with individual patients or small groups.



Figure 1



Figure 2

Administration of food or medication to a chicken can be achieved using a gavage tube (figure 1) or a syringe (figure 2)



**Figure 3:
Administering a
tablet to a
chicken**

Subcutaneous injection:

Small volumes of medications may be administered over the pectoral muscles. Larger volumes may be administered between the shoulder blades.

Intramuscular injection:

An initial intramuscular injection may be advisable to expedite achievement of the minimum inhibitory concentration, especially if there is delayed crop emptying. Repeated intramuscular injections are generally avoided due to the need for an aseptic procedure; pain and damage to the breast muscle; and the availability of easier, less invasive routes.



**Figure 4:
An assistant
restrains a
chicken in an
upright position
for the
administration of
an intramuscular
injection**

Particular care is required when giving intramuscular injections to young birds, as they typically have little muscle mass and a soft sternum, so a hypodermic needle can be easily and inadvertently passed through the sternum and into the thoracic cavity.

Intravenous injection and infusion:

The intravenous route is the route of choice for fluid therapy and repeated or frequent injections.

The predominant access points are:

- Superficial ulnar vein. Tape is applied to both sides of the catheter to act as an anchor whilst the catheter is sewn against the wing.



Figure 5: A catheter is placed in the superficial ulnar vein; tape has been placed around the hub of the catheter to aid suturing into place

- Media tarsal vein. A 22-26G catheter is used and is simply taped in place against the leg.



Figure 6:
An IV catheter in the medial tarsal vein of a chicken

Whilst in mammals, IV catheters need to be replaced every 48-72 hours, this may not be prudent in avian patients due to the limitation of possible access points if prolonged administration is anticipated. The jugular vein may be used for once-off injections, but this may not be an easy location in which to maintain an IV catheter for repeated use. Almost all birds have a featherless tract (apterium) down either side of the neck; once this is located and the feathers have been wetted with disinfectants, the jugular vein is easily raised and accessed.

Intraperitoneal injection:

Whilst the intraperitoneal route is invaluable in mammals, due to the complexities and risks associated with the anatomical position of the abdominal air sacs, IP injections are not recommended.

Intraosseous injection:

The intraosseous route is typically only required in a patient with severe dehydration or circulatory collapse, such that the veins are inaccessible, or in very young or small birds. Intraosseous access is via the distal ulna or proximal tibiotarsus.

- For the ulna – the distal ulna is approached, and the ulnar carpal bone is pushed ventrally to access the articular surface.
- For the tibiotarsus – the stifle is flexed to allow access to the articular surface of the proximal tibiotarsus from the lateral aspect.



Figure 7:
A radiograph confirms the correct placement of the catheter

The procedure is carried out under general anaesthesia, as it will involve hypodermic needle penetration through bone, with associated pain. A spinal needle (20-22 G) of suitable length is used. Pneumatized avian bones (e.g. the femur and humerus) must be avoided to avoid drowning.

Vent sexing:

This is a skilled technique and is highly dependent on the experience of the technician. It is reported to carry a small risk of iatrogenic damage to the chick, especially when performed by inexperienced people. It is usually performed when the chick is 1-day-old but may be performed in older birds.

The procedure for vent sexing chickens is as follows:

1. Faeces are expelled from the cloaca by gently pressing on either side of the abdomen in a cranial to caudal motion.
2. The chick is supported on its back in the palm of the hand with its head pointing towards the technician's elbow and vent pointing upwards. It should be supported by the middle and ring fingers across the breast.
3. The vent is everted using the index finger of the hand in which the chick is being held. The index finger is placed adjacent to the dorsal rim of the vent and the thumb of the other hand is placed adjacent to the ventral rim or side of the vent. Moving the index finger and thumb in a circular motion and then applying pressure will help to achieve eversion.
4. Males are identified by the presence of a small prominence on the ventral wall of the cloaca, which is the rudimentary non-protrusible phallus.
- 5.

Laparoscopic sexing can be used to visualize the gonads of birds. It is relatively invasive and requires general anaesthesia, so tends to be reserved for use in birds of high genetic value and where non-invasive techniques are not sufficiently reliable.

References:

- Alwar D. 2023. *Personal communication.*
 Govender K. 2023. *Personal communication.*
 Mia M Z. 2023. *Personal communication.*
 Nkubungu Y. 2023. *Personal communication.*
 Poland G., Raftery A. 2019. *Backyard poultry medicine and surgery.*
 Smith et al. 2009. *Basic poultry production and management.*
UP course notes



MULTIPLE-CHOICE QUESTIONS

QUESTION 1

Which 2 parameters are commonly used to assess the body condition score of birds:

- a. Thigh musculature and tibial thickness
- b. Pectoral musculature and keel
- c. Keel and thigh musculature
- d. Pectoral musculature and beak length
- e. Tail length and body circumference

QUESTION 2

A brief clinical examination should look for the following:

- a. Bleeding
- b. Breathing pattern
- c. Overall feather condition
- d. Vent condition
- e. All of the above

QUESTION 3

Increased expiratory sounds are associated with the pathology of which part of the respiratory tract:

- a. Lungs
- b. Nares
- c. Glottis
- d. Trachea
- e. Sinuses

QUESTION 4

With regards to the droppings of birds, which of the following is incorrect:

- a. A specimen of droppings should be assessed as part of the routine examination
- b. In birds, urine is voided together with faeces
- c. The occasional presence of blood or mucus is normal
- d. The presence of black, tarry faeces is an indication of bleeding
- e. Urine is the white material in the droppings

QUESTION 5

Which of the following clinical signs necessitate urgent attention:

- a. Bleeding
- b. Dyspnoea
- c. Collapse
- d. Hypothermia
- e. All of the above

QUESTION 6

What temperature range should an ill bird be hospitalized at?

- a. 18-24°C
- b. 30-40°C
- c. 20-23°C
- d. 25-36°C
- e. Environmental temperature

QUESTION 7

What is the main objective of fluid therapy in diseased birds?

- a. To correct fluid deficits
- b. To warm the hypothermic patient
- c. To provide a route of administration for other medication
- d. To relieve the egg-bound bird
- e. To promote diuresis

QUESTION 8

Why should particular care be taken when giving intramuscular injections to young birds?

- a. They have very thin musculature
- b. They have a soft sternum
- c. The needle can penetrate the thoracic cavity
- d. Intramuscular injections are painful and stressful
- e. All of the above

QUESTION 9

With regards to catheterization, which of the following is true?

- a. The intraperitoneal route is invaluable
- b. The humerus should not be used, to avoid drowning
- c. The jugular vein is suitable as a catheter can be easily taped to the head
- d. When catheterizing the ulna, the ulna is approached proximally
- e. The lateral tibial vein is routinely used for iv catheterization

QUESTION 10

Why is laparoscopic sexing not routinely used?

- a. It is invasive
- b. It requires general anaesthesia
- c. The technician needs to be well trained
- d. High cost of procedure and equipment
- e. All of the above

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