City & Guilds Certificate in Veterinary Nursing of Exotic Species

1. Introduction
Welcome to Girling and Fraser Ltd/City & Guilds Certificate in Veterinary Nursing of Exotic Species. I hope you will enjoy studying the various aspects of nursing exotic species and learn how to apply this to everyday situations in the workplace.

This Introduction will explain how the unit is organised and begin to introduce you to the topic.

Some of the introductory material will be familiar to you as it follows on from the RCVS Veterinary Nursing qualification. Perhaps you would like to begin by going over the Study Skills section on the next page and planning your study for the next few weeks.

Good luck with the course!

2. Study skills
Most students starting a course at this level will have some experience of studying. The following points are designed to help you consider the particular study skills required by open learning students.

2.1 Time
The organisation of your time will be a critical factor because your course of study will have to fit in with the rest of your life. Your job and your domestic life cannot simply be ignored. One approach is to organise your time so that you can provide yourself with a regular number of study sessions per week. You will need to decide:

- how much time you will require, on average, each week
- how best to space that time
- how long each study period should be.

Different students take different lengths of time to complete the same assignments, and personal circumstances vary greatly. You may find that a study period of much less than one hour may be of limited value, but after two hours your concentration may begin to wander.
Whatever the routine you devise, you should do your best to keep to it and make others respect it too.

Most open learning students find it important to keep up to date with their work. But if you do fall behind, don’t despair! Get in touch so that we can talk it over.

2.2 Motivation

In many ways, this is the most important factor of all. Students frequently begin courses with great enthusiasm, which then starts to wane. We can all be aware of the fact that work is necessary, but what puts some of us off is the experience of sitting down and doing it week after week. It needs a disciplined approach. For those attending full-time or day release courses, much of this is provided by the lecturer. By contrast, the open learning student must not only do the work, but find the necessary self-discipline.

2.3 Some practical points

1. Provide yourself with paper, pens, a folder and envelopes in which to return your work.

2. Find a place in your home where you can be warm and comfortable and have space to work. It may be the kitchen or a corner of your bedroom, but for the time you are working make it into a suitable study area.

3. Try to get away from television, telephones, children, low flying aircraft, etc. Make your course work high priority and get yourself away from distractions so that you can concentrate.

4. Fix a time for having a break and stick to it. An hour’s working time soon disappears if you have two or three breaks for coffee.

5. Don’t agonise over your work! Do the best you can and send it in to your tutor.
2.4 Resources
The first resource will be the printed material which is posted to your home. Most students find their own way of organising this material, but it is obviously necessary to store it somewhere accessible, such as a ring binder. You may choose to read through the material quickly and then go back and study it more carefully, completing the self assessment questions at the same time. The assignments at the end are always based on the material provided and **should never be completed without careful study of the course material**. However familiar the topic may seem, there will always be something which you need to be reminded of again.

Sometimes you may feel that you are left very much to your own devices in a course like this. It is true that successful students are most likely to be extremely diligent and able to work on their own, but it is also important to remember that as your tutor I am here to help if you need it. You should never worry about “bothering” me. If you have a query, get in touch and get an answer. It may seem easier to ask a colleague or a member of your family what they think, but they are unlikely to provide the specific response that you need.

Most of the information you require is provided in the course material. However, it is advisable that you/your practice has access to the following textbooks:-


### Course Structure

The aim of the course is to help you achieve the City & Guilds Certificate in Veterinary Nursing of Exotic Species. The duration of the course is one year, enrolment can take place at any point during the year and your studies are carried out by distance learning – you do not need to attend any formal classes. The examination will take place in November 2013 (date to be confirmed) in London and Edinburgh and thereafter twice a year. Students who do not complete the course in time for entry will be eligible for entry the following year. The course is divided into 20 units, each unit being worth 3 hours CPD giving a total of **60 hours CPD**.

The work has been divided into four parts – avian, reptile & amphibian, small mammals and British wildlife.

Each of these four parts is made up of 5 individual units:

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| 1 | Biology/husbandry/ reproduction | Unique physiological requirements  
   |   | Needs for breeding  
   |   | Environmental requirements |
| 2 | Nutrition | Food types for general groups  
   |   | Special requirements  
   |   | Requirements of sick and young as opposed to maintenance |
| 3 | Handling | Equipment  
   |   | Techniques  
   |   | Chemical immobilisation |
| 4 | Fluid therapy | Route of administration  
   |   | Rate of administration  
   |   | Types of fluid |
| 5 | Common diseases |   |

Each block of 5 units will be sent out to students every 2 months. Notes will be sent out electronically.
4 Self Assessment
Within each unit you will find self assessment questions. These are exercises which provide a stopping point for you to check your understanding of the work done so far. There are usually answers provided at the end of the printed material. You can, of course, ignore these questions or cheat! They are, however, a very useful way of checking your understanding or simply checking whether you dozed off for a few moments when you thought you were reading. These assessments are designed to help you and there is no need to keep them for assessment purposes, but you may find them helpful for revision.

At the end of each part of the course, you will find an assignment. These assignments test the work covered in the printed material. **They should never be tackled without first studying the teaching material.** When you have completed the assignments, you should e-mail the completed work to exoticvn@btinternet.com

Your tutor will mark and return your work to you as soon as possible. All these assignments should be retained in a folder as they may be required by the external assessor.

Your tutor will try to be as helpful as they can when marking your work and write comments on it. These comments should be read carefully as they provide you with personal tuition and should help you to discover your strengths or to work on problem areas in communication.

5 Examination
In order for you to receive the City & Guilds Certificate in Veterinary Nursing of Exotic Species, you must pass the formal examination as detailed above.

The examination is made up of two written papers (each of 40 multiple choice questions) and a practical paper. Written Paper 1a will cover Avian and Reptilian/Amphibian topics and Paper 1b will cover Small Mammals and British Wildlife as detailed in the test specification below. You will be allowed 40 minutes for each written paper.

The practical component (Paper 2) will involve 20 stations which you will take in rotation. There will be one or two questions at each station regarding an item of equipment, food, or a photograph that will require a short answer.
### 5.1 Test Specification

The underpinning knowledge will be assessed by a written examination.

**Paper title: City & Guilds Veterinary Nursing of Exotic Species – Multiple Choice Paper 1a**

**Test duration: 1 hour**  
**Number of questions: 40**

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<th>Unit</th>
<th>Learning Outcome</th>
<th>Number of questions</th>
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**Paper title: City & Guilds Veterinary Nursing of Exotic Species – Multiple Choice Paper 1b**

**Test duration: 1 hour**  
**Number of questions: 40**

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<td>004 – British Wildlife</td>
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# City & Guilds Veterinary Nursing of Exotic Species – Practical paper (paper 2)

**Test Duration:** 1 hour  
**Number of questions:** 20

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## EXAM DATES

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<th>Date of enrolment</th>
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<td>1st March – 30th September 2013</td>
<td>June 2014</td>
<td>November 2014</td>
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June exam is in Edinburgh / November exam is in London
5.2 Result determination
A pass is 50% or more of the questions over papers 1a and 1b combined answered correctly plus 50% or more of the questions on paper 2 answered correctly.

A student will be eligible to sit the examination once they have completed the full course and will be offered to sit the examination at the first opportunity after the course completion. Students will be allowed to defer their examination entry to the following year should they feel they are not ready at this time. Students that have been unsuccessful in an examination will be offered one further re-sit attempt which cannot be deferred. If a student fails on 2 occasions and wishes to re-take the examination they must re-enrol in the course.

The examination is split into written and practical components as described above. If you need to re-sit you are only required to re-sit the paper which you failed. Successful students will be allowed to place the initials ‘C&GCertVNES’ after their name.

5.3 Criteria for entry
There are no criteria to undertake the course. Anyone with an interest in the subject may complete the course of study. However, the criteria outlined by City & Guilds for eligibility to take the examination and achieve the qualification state that it is only open to fully qualified vet nurses (Qualified and/or listed).

6 Quality assurance
All student information will be recorded on records held within the centre. These records are password protected, access to which is restricted. Data will not be shared with any other bodies except the awarding body. Work completed throughout the programme and the final assessment will be recorded for each student. All work submitted is completed electronically. This information will be held by the centre for three years.
6.1 Course review
The course will be reviewed on an annual basis. Information will be collected from students as the course progresses and following final assessment, from assessors and internal verifiers. This information will be discussed and implemented where relevant. Tutors, assessors and internal verifiers all hold professional (MRCVS or RVN) and assessor / educational qualifications.

Meetings of the tutors and assessors will be held every 6 months, to review the course, assessment procedures and student feedback. Internal verification of course work and final assessment will take place annually. Random sampling of student work at the rate of the square root of the number of students +1 will be implemented.

6.2 Examination
The qualification is only awarded to students who obtain a pass in both sections of the final exam. Coursework is not included. Examination papers will be verified by the awarding body prior to the examination thus ensuring that they are valid, fair and robust. Marking of the examination papers will be carried out by a suitably qualified person and internally verified by the centre. Examination results will be externally verified by the awarding body.

6.3 Appeals
Centre appeals will follow City & Guilds guidelines. Should students wish to appeal against an examination decision they should in the first instance make contact with the centre. All appeals will be dealt with promptly and sympathetically. Students should complete the relevant paperwork (see attached) and return to the centre for consideration within 40 days of the assessment result being released. Feedback will be given to the student within the allotted time. If the outcome of the appeal is not acceptable then an external verifier will be asked to examine the evidence. City & Guilds will be notified of any appeals where the external verifier has been required. The decision of the awarding body on appeals will be final.
7. **Equal opportunities policy**

Access to the qualification is open to all students who meet the entrance requirements, irrespective of gender, religion, age or disability, in line with the requirements of City & Guilds and statutory legislation. Students will be asked to notify the centre of any special requirements at the time of registration. All reasonable efforts will be made to ensure that appropriate measures are put in place to meet the requirements of special needs students.

8. **Health & Safety**

Girling & Fraser takes the health & safety of all students and staff seriously and works in line with current legislation. A copy of the health & safety policy can be sent out on request.
Course descriptor
UNIT 001 AVIAN

Rationale

This unit focuses on developing knowledge of the anatomy and physiology of birds, their normal nutrition during their different lifestages and during disease, the means of physically and chemically restraining them, the requirements for fluid therapy and an overview of common diseases and their management.

Outcomes

1. Understand the anatomy and physiology of birds and their husbandry requirements
2. Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease
3. Understand the means of physically and chemically restraining birds presented in a veterinary surgery
4. Understand the principles of fluid therapy in avian patients
5. Have an overview of common diseases afflicting pet birds and their therapies

Range

The candidate must cover all of the range

Anatomy and physiology: respiratory; gastrointestinal; nervous system; cardiovascular system; lymphoid system; musculoskeletal system; reproductive system; urinary system; husbandry requirements

Nutrition: proteins; fats; carbohydrates; vitamins; macro/microminerals; nutritional deficiencies/excesses and their disease; supportive nutrition

Restraint: physical restraint; Health and Safety; gaseous anaesthetics; injectable anaesthetics; circuits and equipment used to administer gaseous anaesthetics; resuscitation techniques; monitoring anaesthesia; stages of anaesthesia

Fluid therapy: oral; subcutaneous; intravenous; intraosseous; blood transfusions; fluid types; fluid additives

Disease and therapy: infectious disease; non-infectious disease; current methods of treatment/management

Assessment

The outcomes for this unit will be assessed on evidence resulting from
1. Practical activities
   
   These are listed for each outcome. The assessment will be by means of a spot check practical examination and will comprise 5 short answer questions.

2. Written test

   This unit will be assessed by a multiple choice question test.
OUTCOME 1  Understand the anatomy and physiology of birds

Practical Activities

The candidate will be able to

1. Recognise and name the main items of the musculoskeletal system of a bird on a diagram/model.

2. Recognise and name the main items of the respiratory system of a bird on a diagram.

3. Recognise and name the main items of the digestive system on a diagram.

4. Recognise an avian erythrocyte and heterophil on a blood smear.

5. Be able to sample a bird correctly for DNA sex analysis.

6. Recognise the differences between male and females where the sexes are dimorphic in common species such as the Budgerigar, wild coloured Cockateil and Mallard duck.

7. Be able to comment on the satisfactoriness of a cage and housing for various species of avian patient.

Underpinning knowledge

The candidate will be able to

1. State the component parts and functions of the respiratory system
   a) Upper respiratory system including nares, choana, sinus system.
   b) Lower respiratory system including glottis, trachea, lungs and air sac system.
   c) With respect to anaesthesia be able to compare the avian respiratory cycle with its differences from the mammalian system.

2. State the component parts and functions of the digestive system
   a) Upper GI tract including the beak, pharynx, proximal oesophagus and crop.
   b) Lower GI tract including the distal oesophagus, the proventriculus, the ventriculus, the small intestine, large intestine and cloaca.
   c) The liver and the gall bladder (where present).
   d) The pancreas.

3. State the component parts and functions of the urinary system
   a) The kidneys, their blood supply and association with leg nerves.
   b) The ureters and their entrance into the urodeum portion of the cloaca.
c) the presence of two forms of nephron-mammalian form and reptilian form in the avian kidney
d) the main waste product of protein metabolism is uric acid and the impact this has on water conservation and formation of gout when disease occurs

4. state the component parts and functions of the cardiovascular system
   a) the heart and its main differences from the mammalian form
   b) the major arteries and veins

5. state the component parts and functions of the lymphatic system
   a) the major collecting ducts
   b) the absence of lymph nodes except in some species of duck
   c) the presence of the unique Bursa of Fabricius producing B lymphocytes in the dorsal wall of the cloaca

6. state the component parts and functions of the reproductive system
   a) single ovary (left) in females in most species
   b) single (left) oviduct comprising fimbria; isthmus; magnum; shell gland and vagina
   c) two testes-both internal in males and fluctuations in size during breeding season
   d) single vas deferens from each testis to the cloaca and presence of seminal gland in some species which enlarges during breeding season
   e) connection of vas deferens (males) and oviduct (females) to urodeum of cloaca

7. The identification of the sex of an individual bird and the methods involved
   a) Sexually dimorphic versus sexually monomorphic species
   b) DNA sexing and ZZ nature of males and ZY nature of females
   c) Endoscopic sexing

8. state the component parts and functions of the skin and feathers
   a) avian skin thickness versus mammalian
   b) feathered (pterylae) and non-feathered (apterylaie) tracts
   c) flight feathers – remiges (wing flight feathers) made up of: primaries (manus of wing); secondaries (antebrachium); and rectrices (tail flight feathers)
   d) down feathers and contour body feathers
   e) sensory feathers (filoplumes) and their function in flight and sensation

9. state the component parts and functions of the avian blood cells
   a) nucleated erythrocytes
   b) nucleated thrombocytes instead of platelets
   c) heterophils replacing the mammalian neutrophil
   d) small and large lymphocytes
   e) basophils and esoinophils
10. Husbandry and cage requirements of captive birds
   a) aviary flights and their relevance to raptors and collections
   b) minimum legal sizes for cages for captive birds
   c) suitable materials/dangerous materials to construct cages
   d) methods of group versus solitary housing of birds
   e) suitable lighting and positioning of cages
OUTCOME 2   Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease

Practical Activities

The candidate will be able to

1. Recognise the different main seed types and food items presented to him/her and to decide which are most appropriate to which species

2. Demonstrate how to crop tube the avian patient to administer supportive nutrition

3. Assess the nutritional balance of a diet presented to him/her and advise a client on changes to ensure a healthier quality of diet

4. Be aware of what would be an appropriate size of crop tube for a set species of bird to administer supportive nutrition

5. Be aware of safe maximum volumes of fluid that may be administered to a different species of bird by crop tube at any one time

Underpinning knowledge

The candidate will be able to

1. Classify bird species according to their dietary habits

2. State the average water requirements of different commonly encountered species

3. State the definition of the terms Metabolic Energy Requirements (MER) and Basal Metabolic Requirements (BMR) with respect to the avian patient and the variation in the factor ‘k’ between psittacine and passerine birds.

4. List the protein and amino acid requirements of avian species, particularly those essential amino acids, and the percentage protein requirements

5. State the fat and essential fatty acid requirements of avian species, as well as the problems associated with deficiencies and over-supplementation

6. State the carbohydrate requirements, and the presence of the ability to digest fibre in some species of avian patients

7. State the requirements for vitamins as part of a balanced diet, and the diseases associated with deficiencies and over-supplementation

8. State the requirement for macro-minerals in the diet of the avian patient. The species variations and the diseases associated with deficiencies and over-supplementation.
9. State the requirement for trace elements in the avian diet, particularly with respect to species (e.g. Budgerigars need for dietary iodine)

10. State the variation in nutritional requirements for growth, both in the embryonic stages and post-hatching

11. State the nutritional requirements for breeding in avian species

12. State the nutritional requirements for the older avian patient

13. State the nutritional requirements for the debilitated/sick avian patient, noting the increases in MER

14. State the maximal volumes of liquid formula which may be safely administered to a range of species by crop tube

15. State the techniques employed in introducing new food types to the diet of an avian patient

16. List powder supplements and complete pelleted foods for avian species

17. State the broad outlines of food types which are fed to psittacines, raptors, passerines and waterfowl
OUTCOME 3    Understand the means of physically and chemically restraining birds presented in a veterinary surgery

**Practical Activities**

The candidate will be able to

1. Be able to manually restrain the avian patient for administration of medications, examination and following escape, in a manner considered appropriate for that species and its state of health.

2. Be able to choose the correct anaesthetic circuits and monitoring equipment from a choice given.

3. Be able to choose the correct anaesthetic agents for the species and procedure concerned from a selection of agents.

4. Be able to place an endo-tracheal tube in commonly presented avian species.

5. Be able to perform intermittent positive pressure ventilation to maintain anaesthesia.

6. Be able to choose correct venous access for anaesthetic administration and fluid therapy.

7. Be able to choose and administer the correct analgesic agent for the species involved.

8. Be aware of the site for placement of an emergency air-sac tube in cases of tracheal disease/obstruction.

**Underpinning knowledge**

The candidate will be able to

1. State the points to be considered prior to attempting to restrain an avian patient with respect to handler and patient safety.

2. List the procedures to be carried out prior to restraining an avian patient.

3. List the equipment which may be utilised to restrain the avian patient (including those more specialised items used for birds of prey).

4. State the rationale behind the use of chemical restraint.

5. List the procedures to be carried out prior to administration of chemical restraint.
6. List what anaesthetics are available for sedation and premedication, their pros and cons

7. List what anaesthetics are available for full anaesthesia and their pros and cons

8. Understand the technique for positive pressure ventilation

9. State the relevance of avian respiratory physiology and anatomy with respect to the use of gaseous anaesthesia

10. State the methods for assessing the depth of anaesthesia

11. State the methods for assessing patient’s vital signs during anaesthesia

12. State what analgesics are available for use post-operatively

13. List what fluid and supportive medication therapy is available to the clinician during and after surgery
OUTCOME 4  Understand the principles of fluid therapy in avian patients

Practical Activities

The candidate will be able to

1. Select the correct fluid type from a selection given

2. Select the correct site to administer fluids depending on the species and the disease/fluid loss being corrected

3. Select the correct equipment required to administer subcutaneous, intravenous, oral and intraosseous fluids from a selection given

4. Select the site and equipment needed to place –
   A) A jugular intravenous catheter
   B) A medial metatarsal intravenous catheter
   C) A proximal tibiotarsus intraosseous catheter
   D) A distal ulna intraosseous catheter

Underpinning knowledge

The candidate will be able to

1. State the reasoning behind the use of fluid therapy in the avian patient

2. State the maintenance requirements of the avian patient

3. State why fluids are needed during the treatment of avian diseases

4. State why fluids are required post-operatively

5. State why some avian species may require additional electrolyte replacements

6. List what fluid types are used in avian medicine

7. State when to use protein/vitamin B supplementation with fluid therapy

8. State when to use colloids and hypertonic fluids

9. Describe how to perform blood transfusions in birds

10. List the use of oral rehydration solutions and state their restrictions

11. Be able to perform a calculation of an avian patient’s fluid replacement needs and how to divide these over time

12. List the equipment required to administer fluid therapy
13. List the routes available and their variation between species groups for fluid therapy

14. State how to place an intravenous jugular catheter

15. State how to place a medial metatarsal catheter in waterfowl

16. State how to place a proximal tibiotarsal intraosseous catheter

17. State how to place a distal ulna intraosseous catheter
OUTCOME 5 Have an overview of common diseases afflicting pet birds and their therapies

Practical Activities

The candidate will be able to

1. Correctly choose the necessary equipment to administer a common medicine
2. Know where and how to administer a common medicine
3. Be able to identify the areas of a bird’s body to avoid when giving injections
4. Recognise the basic signs of an avian patient in respiratory distress
5. Be able to recognise an underweight avian patient and be able to roughly ‘body score’ them
6. Recognise the basic signs of the ‘sick-bird-syndrome’ patient

Underpinning knowledge

The candidate will be able to

1. List the common diseases afflicting avian patients –
   a). Feather and skin
   b). Digestive system
   c). Respiratory system
   d). Cardiovascular system
   e). Nervous system
   f). Reproductive system
   g). Musculo-skeletal system

2. List the treatment(s) of the above conditions (in brief)

3. State the routes of medication administration, subcutaneous as opposed to oral, intramuscular, intravenous and nebulisation therapy, as well as species and medicine type variations

4. State the diseases which predominate in certain species of avian patient

5. State the diseases of growing birds as opposed to adults

6. State the diseases of ageing birds as opposed to adults
UNIT 002  REPTILE AND AMPHIBIAN

Rationale

This unit focuses on developing knowledge of the anatomy and physiology of reptiles and amphibians, their normal nutrition during their different lifestages and during disease, the means of physically and chemically restraining them, the requirements for fluid therapy and an overview of common diseases and their management.

Outcomes

6  Understand the anatomy and physiology of reptiles and amphibians and their husbandry requirements
7  Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease
8  Understand the means of physically and chemically restraining reptiles and amphibians presented in a veterinary surgery
9  Understand the principles of fluid therapy in reptile and amphibian patients
10 Have an overview of common diseases afflicting captive reptile and amphibians and their therapies

Range

The candidate must cover all of the range

Anatomy and physiology:  respiratory; gastrointestinal; nervous system; cardiovascular system; lymphoid system; musculoskeletal system; reproductive system; urinary system; and their husbandry requirements

Nutrition:  proteins; fats; carbohydrates; vitamins; macro/microminerals; nutritional deficiencies/excesses and their disease; supportive nutrition

Restraint:  physical restraint; Health and Safety; gaseous anaesthetics; injectable anaesthetics; circuits used; resuscitation techniques; monitoring anaesthesia; stages of anaesthesia

Fluid therapy:  oral; subcutaneous; intravenous; intraosseous; blood transfusions; fluid types; fluid additives

Disease and therapy:  infectious disease; non-infectious disease; methods of treatment/management

Assessment

The outcomes for this unit will be assessed on evidence resulting from

1  Practical activities
These are listed for each outcome. The assessment will be by means of a spot check practical examination and will comprise 5 short answer questions.

2 Written test

This unit will be assessed by a multiple choice question test.
OUTCOME 1  Understand the anatomy and physiology of reptiles and amphibians

Practical Activities

The candidate will be able to

1. Recognise and name the main items of the musculoskeletal system of a reptile/amphibian on a diagram/model.

2. Recognise and name the main items of the respiratory system of a reptile/amphibian on a diagram.

3. Recognise and name the main items of the digestive system on a diagram.

4. Recognise a reptile/amphibian erythrocyte and heterophil on a blood smear.

5. Recognise the differences between male and females where the sexes are dimorphic in common species such as the Mediterranean tortoises and Green Iguana.

6. Be able to comment on the satisfactoriness of a cage and housing for various species of reptile/amphibian patient.

Underpinning knowledge

The candidate will be able to

1. state the component parts and functions of the respiratory system
   a) upper respiratory system including nares, choana, lack of hard palate
   b) lower respiratory system including glottis, trachea, lungs and air sac system
   c) with respect to anaesthesia be able to compare the reptilian and amphibian respiratory cycle with its differences from the mammalian system

2. state the component parts and functions of the digestive system
   a) upper GI tract including the teeth (presence/absence of fangs and six rows in snakes; 4 rows in lizards; no teeth in chelonians), pharynx, oesophagus
   b) lower GI tract including the stomach, the small intestine, large intestine and cloaca
   c) the liver and the gall bladder (where present)
   d) the pancreas

3. state the component parts and functions of the urinary system
   a) the kidneys, their blood supply and the renoportal system
b) the ureters and their entrance into the urodeum portion of the cloaca
c) the presence of the reptilian form of nephron (no loop of Henle)
d) the main waste product of protein metabolism is uric acid and the impact this has on water conservation and formation of gout when disease occurs

4. state the component parts and functions of the cardiovascular system
   a) the heart and its main differences from the mammalian form
   b) the major arteries and veins

5. state the component parts and functions of the lymphatic system
   a) the major collecting ducts
   b) the absence of lymph nodes

6. state the component parts and functions of the reproductive system
   a) bilateral ovaries in females in most species
   b) bilateral oviduct comprising fimbria; isthmus; magnum; shell gland and vagina
   c) two testes-both internal in males and fluctuations in size during breeding season
   d) connection of vas deferens (males) and oviduct (females) to urodeum of cloaca

7. The identification of the sex of an individual reptile and the methods involved
   a) Sexually dimorphic versus sexually monomorphic species
   b) Sex probing of snakes and some lizards
   c) Endoscopic sexing

8. state the component parts and functions of the skin and scales
   a) reptile skin thickness versus mammalian
   b) scale formation and patternation of reptiles
   c) permeability of amphibian skin
   d) ornamentation and colour usage in reptiles and amphibians

9. state the component parts and functions of the reptile/amphibian blood cells
   a) nucleated erythrocytes
   b) nucleated thrombocytes instead of platelets
   c) heterophils replacing the mammalian neutrophil
   d) small and large lymphocytes
   e) basophils and eosinophils

10. Husbandry and vivarium requirements of captive reptiles and amphibians
    a) different types of vivaria and their relevance to chelonia, lizards and snakes
    b) minimum recommended sizes for vivaria for captive reptiles and amphibians
    c) suitable materials/dangerous materials to construct vivaria
    d) methods of group versus solitary housing of reptiles and amphibians
e) suitable lighting – particularly ultra violet light and positioning of vivaria
OUTCOME 2  
Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease

Practical Activities

The candidate will be able to

1. Recognise the different main food items presented to him/her and to decide which are most appropriate to which species

2. Assess the nutritional balance of a diet presented to him/her and advise a client on changes to ensure a healthier quality of diet

Underpinning knowledge

The candidate will be able to

1. Classify reptile and amphibian species according to their dietary habits

2. State the average water requirements of different commonly encountered species

3. State the definition of the terms Metabolic Energy Requirements (MER) and Basal Metabolic Requirements (BMR) with respect to the reptile patient and the variation in the factor ‘k’.

4. List the protein and amino acid requirements of reptile and amphibian species, particularly those essential amino acids, and the percentage protein requirements

5. State the fat and essential fatty acid requirements of reptile and amphibian species, as well as the problems associated with deficiencies and over-supplementation

6. State the carbohydrate requirements, and the presence of the ability to digest fibre in some species of reptile and amphibian patients

7. State the requirements for vitamins as part of a balanced diet, and the diseases associated with deficiencies and over-supplementation

8. State the requirement for macro-minerals in the diet of the reptile and amphibian patient. The species variations and the diseases associated with deficiencies and over-supplementation.

9. State the requirement for trace elements in the reptile and amphibian diet, particularly with respect to species

10. State the variation in nutritional requirements for growth, both in the embryonic stages and post-hatching
11. State the nutritional requirements for breeding in reptile and amphibian species

12. State the nutritional requirements for the older reptile and amphibian patient

13. State the nutritional requirements for the debilitated/sick reptile and amphibian patient, noting the increases in MER

14. Describe the disease of post hibernational anorexia in chelonia

15. Describe the condition known as metabolic bone disease

16. Describe the condition known as gout

17. Describe the factors associated with obesity in captive reptiles

18. State the influence of environmental temperature on nutritional requirements

19. Describe the methods to encourage appetite and the introduction of new foods in snakes

20. State the refeeding syndrome and its relevance to anorexia

21. State the legal requirements with regard to the feeding of live prey

22. List the normal dietary requirements of the Green Iguana and a Mediterranean tortoise
OUTCOME 3 Understand the means of physically and chemically restraining reptiles and amphibians presented in a veterinary surgery

Practical Activities

The candidate will be able to

1. Be able to manually restrain the reptile/amphibian patient for administration of medications, examination and following escape, in a manner considered appropriate for that species and its state of health.

2. Be able to choose the correct anaesthetic circuits and monitoring equipment from a choice given.

3. Be able to choose the correct anaesthetic agents for the species and procedure concerned from a selection of agents.

4. Be able to place an endo-tracheal tube in commonly presented reptile/amphibian species.

5. Be able to perform intermittent positive pressure ventilation to maintain anaesthesia.

6. Be able to choose correct venous access for anaesthetic administration and fluid therapy.

7. Be able to choose and administer the correct analgesic agent for the species involved.

Underpinning knowledge

The candidate will be able to

1. State the points to be considered prior to attempting to restrain a reptile or amphibian patient with respect to handler and patient safety.

2. List the procedures to be carried out prior to restraining a reptile or amphibian patient.

3. List the equipment which may be utilised to restrain the reptile or amphibian patient (including those more specialised items used for poisonous species).

4. State the rationale behind the use of chemical restraint.

5. List the procedures to be carried out prior to administration of chemical restraint.
6. List what anaesthetics are available for sedation and premedication, their pros and cons

7. List what anaesthetics are available for full anaesthesia and their pros and cons

8. Understand the technique for positive pressure ventilation

9. State the relevance of reptile and amphibian respiratory physiology and anatomy with respect to the use of gaseous anaesthesia

10. State the methods for assessing the depth of anaesthesia

11. State the methods for assessing patient’s vital signs during anaesthesia

12. State what analgesics are available for use post-operatively

13. List what fluid and supportive medication therapy is available to the clinician during and after surgery
OUTCOME 4  Understand the principles of fluid therapy in reptile and amphibian patients

Practical Activities

The candidate will be able to

1. Select the correct fluid type from a selection given
2. Select the correct site to administer fluids depending on the species and the disease/fluid loss being corrected
3. Select the correct equipment required to administer subcutaneous, intravenous, oral and intraosseous fluids from a selection given
4. Select the site and equipment needed to place –
   A) A jugular intravenous catheter
   B) A pharyngostomy tube
   C) A shell intraosseous catheter in a tortoise
   D) A distal femoral intraosseous catheter

Underpinning knowledge

The candidate will be able to

1. State the reasoning behind the use of fluid therapy in the reptile and amphibian patient
2. State the maintenance requirements of the reptile and amphibian patient
3. State why fluids are needed during the treatment of reptile and amphibian diseases
4. State why fluids are required post-operatively
5. State why some reptile and amphibian species may require additional electrolyte replacements
6. List what fluid types are used in reptile and amphibian medicine
7. State when to use protein/vitamin B supplementation with fluid therapy
8. State when to use colloids and hypertonic fluids
9. Describe how to perform blood transfusions in reptiles
10. List the use of oral rehydration solutions and state their restrictions
11. Be able to perform a calculation of a reptile and amphibian patient's fluid replacement needs and how to divide these over time

12. List the equipment required to administer fluid therapy

13. List the routes available and their variation between species groups for fluid therapy

14. How to place an intravenous jugular catheter in snakes and Chelonia

15. How to place an intraosseous shell catheter in Chelonia

16. How to place a proximal tibial intraosseous catheter in lizards

17. How to place a distal and proximal femoral intraosseous catheter in lizards

18. How to place a pharyngostomy feeding/fluid administration tube in snakes and Chelonia
OUTCOME 5  Have an overview of common diseases afflicting captive reptiles and amphibians and their therapies

Practical Activities

The candidate will be able to

1. Correctly choose the necessary equipment to administer a common medicine
2. Know where and how to administer a common medicine
3. Be able to identify the areas of a reptile/amphibian’s body to avoid when giving injections
4. Recognise the basic signs of a reptile/amphibian patient in respiratory distress
5. Be able to recognise an underweight reptile/amphibian patient and be able to roughly ‘body score’ them

Underpinning knowledge

The candidate will be able to

1. List the common diseases afflicting reptile and amphibian patients –
   a). Scales and skin
   b). Digestive system
   c). Respiratory system
   d). Cardiovascular system
   e). Nervous system
   f). Reproductive system
   g). Musculo-skeletal system

2. List the treatment(s) of the above conditions (in brief)

3. State the routes of medication administration, subcutaneous as opposed to oral, intramuscular, intracoelomic, intravenous and nebulisation therapy, as well as species and medicine type variations

4. State the diseases which predominate in certain species of reptile and amphibian patient

5. State the diseases of growing reptile and amphibians as opposed to adults

6. State the diseases of ageing reptile and amphibians as opposed to adults
UNIT 003 SMALL MAMMALS

Rationale

This unit focuses on developing knowledge of the anatomy and physiology of small mammals, their normal nutrition during their different lifestages and during disease, the means of physically and chemically restraining them, the requirements for fluid therapy and an overview of common diseases and their management.

Outcomes

11 Understand the anatomy and physiology of small mammals and their husbandry requirements
12 Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease
13 Understand the means of physically and chemically restraining small mammals presented in a veterinary surgery
14 Understand the principles of fluid therapy in small mammal patients
15 Have an overview of common diseases afflicting pet small mammals and their therapies

Range

The candidate must cover all of the range

Anatomy and physiology: respiratory; gastrointestinal; nervous system; cardiovascular system; lymphoid system; musculoskeletal system; reproductive system; urinary system; and their husbandry requirements

Nutrition: proteins; fats; carbohydrates; vitamins; macro/microminerals; nutritional deficiencies/excesses and their disease; supportive nutrition

Restraint: physical restraint; Health and Safety; gaseous anaesthetics; injectable anaesthetics; circuits used; resuscitation techniques; monitoring anaesthesia; stages of anaesthesia

Fluid therapy: oral; subcutaneous; intravenous; intraosseous; blood transfusions; fluid types; fluid additives

Disease and therapy: infectious disease; non-infectious disease; methods of treatment/management

Assessment

The outcomes for this unit will be assessed on evidence resulting from

1 Practical activities
These are listed for each outcome. The assessment will be by means of a spot check practical examination and will comprise 5 short answer questions.

2 Written test

This unit will be assessed by a multiple choice question test.
OUTCOME 1  Understand the anatomy and physiology of small mammals

Practical Activities

The candidate will be able to

1. Recognise and name the main items of the musculoskeletal system of a small mammal on a diagram/model.
2. Recognise and name the main items of the respiratory system of a small mammal on a diagram.
3. Recognise and name the main items of the digestive system on a diagram.
4. Recognise a small mammal erythrocyte and neutrophil on a blood smear.
5. Recognise the differences between male and female small mammals.
6. Be able to comment on the satisfactoriness of a cage and housing for various species of small mammal patient.

Underpinning knowledge

The candidate will be able to

The candidate will be able to

1. state the component parts and functions of the respiratory system
   a) upper respiratory system including nares, nasal passages and epiglottis
   b) lower respiratory system including trachea and lungs
2. state the component parts and functions of the digestive system
   a) upper GI tract including the teeth (with particular reference to food preferences), pharynx and oesophagus
   b) lower GI tract including the stomach, the small intestine, large intestine and caecum (if present)
   c) the liver and the gall bladder (where present)
   d) the pancreas
3. state the component parts and functions of the urinary system
   a) the kidneys, their blood supply
   b) the ureters and their entrance into the urinary bladder
   c) the presence of a loop of Henle in every nephron and its significance for desert species such as Gerbils
   d) the main waste product of protein metabolism is urea and some herbivores excrete large amounts of calcium salts in their urine
4. state the component parts and functions of the cardiovascular system
a) the heart
b) the major arteries and veins

5. State the component parts and functions of the lymphatic system
a) the major collecting ducts
b) the lymph nodes
c) the persistence of the thymus in adults

6. State the component parts and functions of the reproductive system
a) bilateral ovaries in females
b) duplex versus bicornuate uteri in different small mammal species
b) duplex versus bicornuate uteri in different small mammal species
c) two testes-both external in males and fluctuations in size during breeding season in ferrets and ability to retract testes in most rodents
d) single vas deferens from each testis to the urethra and presence of varying numbers of secondary sexual glands such as the prostate, seminal vesicles and bulbourethral glands

7. The identification of the sex of an individual small mammal and the methods involved
a) Comparing ano-genital distances
b) Some species possess obvious external testes but can retract them
c) Separate urinary and reproductive tract external openings in female rodents

8. State the component parts and functions of the skin and fur
a) folds and skin flaps in rabbits
b) fracture planes in skin of tail in Gerbils
c) absence of sweat glands in most rodents and rabbits and its impact on thermoregulation
d) presence of scent glands
e) absence of foot pads in rabbits

9. State the component parts and functions of the small mammal blood cells
a) non-nucleated biconcave erythrocytes
b) platelets
c) neutrophils first line of defence
d) small and large lymphocytes
e) basophils and eosinophils

10. Husbandry and cage requirements of small mammals
a) separation of carnivores from herbivores by rooms
b) deep litter systems for Gerbils
c) avoidance of fish-tank style cages for rats and mice
d) avoidance of wire cages in hamsters
e) suitable lighting and positioning of cages
OUTCOME 2  Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease

Practical Activities

The candidate will be able to

1. Recognise the different main food items presented to him/her and to decide which are most appropriate to which species

2. Assess the nutritional balance of a diet presented to him/her and advise a client on changes to ensure a healthier quality of diet

Underpinning knowledge

The candidate will be able to

1. Classify small mammal species according to their dietary habits

2. State the average water requirements of different commonly encountered species

3. State the definition of the terms Metabolic Energy Requirements (MER) and Basal Metabolic Requirements (BMR) with respect to the small mammal patient and the variation in the factor ‘k’

4. List the protein and amino acid requirements of different small mammal species, particularly those essential amino acids, and the percentage protein requirements

5. State the fat and essential fatty acid requirements of different small mammal species, as well as the problems associated with deficiencies and over-supplementation

6. State the carbohydrate requirements, and the presence of the ability to digest fibre in some species of small mammal patients

7. State the requirements for vitamins as part of a balanced diet, and the diseases associated with deficiencies and over-supplementation

8. State the requirement for macro-minerals in the diet of the small mammal patient. The species variations and the diseases associated with deficiencies and over-supplementation.

9. State the requirement for trace elements in the small mammal diet, particularly with respect to species

10. State the variation in nutritional requirements for growth, both in the embryonic stages and post-partum
11. State the nutritional requirements for breeding in small mammal species

12. State the nutritional requirements for the older small mammal patient

13. State the nutritional requirements for the debilitated/sick small mammal patient, noting the increases in MER
OUTCOME 3 Understand the means of physically and chemically restraining small mammals presented in a veterinary surgery

Practical Activities

The candidate will be able to

1. Be able to manually restrain the small mammal patient for administration of medications, examination and following escape, in a manner considered appropriate for that species and its state of health.

2. Be able to choose the correct anaesthetic circuits and monitoring equipment from a choice given.

3. Be able to choose the correct anaesthetic agents for the species and procedure concerned from a selection of agents.

4. Be able to choose correct venous access for anaesthetic administration and fluid therapy.

5. Be able to choose and administer the correct analgesic agent for the species involved.

Underpinning knowledge

The candidate will be able to

1. State the points to be considered prior to attempting to restrain a small mammal patient with respect to handler and patient safety.

2. List the procedures to be carried out prior to restraining a small mammal patient.

3. List the equipment which may be utilised to restrain the small mammal patient.

4. State the rationale behind the use of chemical restraint.

5. List the procedures to be carried out prior to administration of chemical restraint.

6. List what anaesthetics are available for sedation and premedication, their pros and cons.

7. List what anaesthetics are available for full anaesthesia and their pros and cons.

8. State the relevance of small mammal respiratory physiology and anatomy with respect to the use of gaseous anaesthesia.
9. State the methods for assessing the depth of anaesthesia

12. State the methods for assessing patient’s vital signs during anaesthesia

13. State what analgesics are available for use post-operatively

14. List what fluid and supportive medication therapy is available to the clinician during and after surgery
OUTCOME 4 Understand the principles of fluid therapy in small mammal patients

Practical Activities

The candidate will be able to

1. Select the correct fluid type from a selection given
2. Select the correct site to administer fluids depending on the species and the disease/fluid loss being corrected
3. Select the correct equipment required to administer subcutaneous, intravenous, oral and intraosseous fluids from a selection given
4. Select the site and equipment needed to place –
   A) A jugular intravenous catheter
   B) A lateral ear vein intravenous catheter in a rabbit
   C) A proximal femoral intraosseous catheter in a Guinea pig

Underpinning knowledge

The candidate will be able to

1. State the reasoning behind the use of fluid therapy in the small mammal patient
2. State the maintenance requirements of the small mammal patient
3. State why fluids are needed during the treatment of small mammal diseases
4. State why fluids are required post-operatively
5. State why some small mammal species may require additional electrolyte replacements
6. List what fluid types are used in small mammal medicine
7. State when to use protein/vitamin B supplementation with fluid therapy
8. State when to use colloids and hypertonic fluids
9. Describe how to perform blood transfusions in small mammals
10. List the use of oral rehydration solutions and state their restrictions
11. Be able to perform a calculation of a small mammal patient’s fluid replacement needs and how to divide these over time
12. List the equipment required to administer fluid therapy

13. List the routes available and their variation between species groups for fluid therapy

14. How to place an intravenous lateral ear vein catheter in rabbits

15. How to place an intravenous jugular catheter in small mammals

16. How to place a proximal femoral intraosseous catheter in rabbits and Guinea pigs
OUTCOME 5  Have an overview of common diseases afflicting pet small mammals and their therapies

Practical Activities

The candidate will be able to

1. Correctly choose the necessary equipment to administer a common medicine
2. Know where and how to administer a common medicine
3. Be able to identify the areas of a small mammal’s body to avoid when giving injections
4. Recognise the basic signs of a small mammal patient in respiratory distress
5. Be able to recognise an underweight small mammal patient and be able to roughly ‘body score’ them

Underpinning knowledge

The candidate will be able to

1. List the common diseases afflicting small mammal patients –
   a). Fur and skin
   b). Digestive system
   c). Respiratory system
   d). Cardiovascular system
   e). Nervous system
   f). Reproductive system
   g). Musculo-skeletal system

2. List the treatment(s) of the above conditions (in brief)

3. State the routes of medication administration, subcutaneous as opposed to oral, intramuscular, intraperitoneal, intravenous and nebulisation therapy, as well as species and medicine type variations

4. State the diseases which predominate in certain species of small mammal patient

5. State the diseases of growing small mammals as opposed to adults

6. State the diseases of ageing small mammals as opposed to adults
UNIT 004 BRITISH WILDLIFE

Rationale

This unit focuses on developing knowledge of the anatomy and physiology of British wildlife, their normal nutrition during their different lifestages and during disease, the means of physically and chemically restraining them, the requirements for fluid therapy and an overview of common diseases and their management.

Outcomes

1. Understand the anatomy and physiology of British wildlife and their husbandry requirements
2. Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease
3. Understand the means of physically and chemically restraining British wildlife presented in a veterinary surgery
4. Understand the principles of fluid therapy in British wildlife patients
5. Have an overview of common diseases afflicting British wildlife and their therapies

Range

The candidate must cover all of the range

Anatomy and physiology: respiratory; gastrointestinal; nervous system; cardiovascular system; lymphoid system; musculoskeletal system; reproductive system; urinary system; and their husbandry requirements

Nutrition: proteins; fats; carbohydrates; vitamins; macro/microminerals; nutritional deficiencies/excesses and their disease; supportive nutrition

Restraint: physical restraint; Health and Safety; gaseous anaesthetics; injectable anaesthetics; circuits used; resuscitation techniques; monitoring anaesthesia; stages of anaesthesia

Fluid therapy: oral; subcutaneous; intravenous; intraosseous; blood transfusions; fluid types; fluid additives

Disease and therapy: infectious disease; non-infectious disease; methods of treatment/management; legal aspects of wildlife release and treatment

Assessment

The outcomes for this unit will be assessed on evidence resulting from

1. Practical activities
These are listed for each outcome. The assessment will be by means of a spot check practical examination and will comprise 5 short answer questions.

2 Written test

This unit will be assessed by a multiple choice question test.
OUTCOME 1 Understand the anatomy and physiology of British wildlife

Practical Activities

The candidate will be able to

1. Recognise and name the main items of the musculoskeletal system of a given common British wild animal on a diagram/model.

2. Recognise and name the main items of the respiratory system of a given British wild animal on a diagram.

3. Recognise and name the main items of the digestive system on a diagram.

4. Recognise the differences between male and females in common wild animal species.

5. Be able to comment on the satisfactoriness of a cage design and holding facilities for various species of wild animal patient.

Underpinning knowledge

The candidate will be able to

1. State the component parts and functions of the respiratory system of common species of British wildlife
   a) upper respiratory system including nares, nasal passages, epiglottis
   b) lower respiratory system including trachea and lungs

2. State the component parts and functions of the digestive system
   a) upper GI tract including the teeth, pharynx, oesophagus
   b) lower GI tract including the stomach (and where ruminants such as deer are present the reticulum, rumen, omasum and true stomach/abomasums), the small intestine, large intestine and caecum where present
   c) the liver and the gall bladder (where present)
   d) the pancreas

3. State the component parts and functions of the urinary system
   a) the kidneys and their blood supply
   b) the ureters and their entrance into the urinary bladder

4. State the component parts and functions of the cardiovascular system
   a) the heart
   b) the major arteries and veins

5. State the component parts and functions of the lymphatic system
   a) the major collecting ducts
b) the presence of lymph nodes

6. state the component parts and functions of the reproductive system
   a) in mammals bilateral ovaries in females
   b) in mammals presence of duplex or bicornuate uterus
   c) two testes—both external in male mammals (except bats) and fluctuations in size during breeding season
   d) single vas deferens from each testis to the urethra and presence of varying secondary sexual glands such as the prostate, vesicular and bulbourethral gland in some species which enlarges during breeding season

7. The identification of the sex of an individual mammal and the methods involved

8. state the component parts and functions of the fur and skin
   a) adaptations of skin such as wing webs in bats
   b) presence of blubber in species such as seals
   c) changing pelts of some mammals during the year (e.g. stoats)

9. state the component parts and functions of the common mammalian wildlife blood cells
   a) non-nucleated biconcave erythrocytes
   b) non-nucleated platelets
   c) neutrophils as first line of defence
   d) small and large lymphocytes
   e) basophils and eosinophils

10. Husbandry and cage requirements of captive British wildlife
    a) need to minimise noise and bright lighting for wildlife species
    b) minimum legal sizes for cages for captive birds
    c) suitable materials/dangerous materials to construct cages
    d) methods of group versus solitary housing of certain species
    e) suitable lighting and positioning of cages
OUTCOME 2  
Appreciate the essential nutritional requirements for health and deficits/excesses associated with disease

Practical Activities

The candidate will be able to

1. Recognise the different main food items presented to him/her and to decide which are most appropriate to which species

2. Assess the nutritional balance of a diet presented to him/her and advise a client on changes to ensure a healthier quality of diet

Underpinning knowledge

The candidate will be able to

1. State the classification of wildlife species according to their dietary habits

2. State the average water requirements of different commonly encountered species

3. State the definition of the terms Metabolic Energy Requirements (MER) and Basal Metabolic Requirements (BMR)

4. List the protein and amino acid requirements of wildlife species, particularly those essential amino acids, and the percentage protein requirements

5. List the fat and essential fatty acid requirements of wildlife species, as well as the problems associated with deficiencies and over-supplementation

6. List the carbohydrate requirements, and the presence of the ability to digest fibre in some species of wildlife patients

7. List the requirements for vitamins as part of a balanced diet, and the diseases associated with deficiencies and over-supplementation

8. List the requirement for macro-minerals in the diet of the wildlife patient. The species variations and the diseases associated with deficiencies and over-supplementation.

9. List the requirement for trace elements in the wildlife diet

10. List the differences in requirements for lactating and young wildlife patients

11. List the differences in requirements for debilitated wildlife patients
OUTCOME 3  Understand the means of physically and chemically restraining British wildlife presented in a veterinary surgery

Practical Activities

The candidate will be able to

1. Be able to manually restrain the wildlife patient for administration of medications, examination and following escape, in a manner considered appropriate for that species and its state of health.

2. Be able to choose the correct anaesthetic circuits and monitoring equipment from a choice given.

3. Be able to choose the correct anaesthetic agents for the species and procedure concerned from a selection of agents.

4. Be able to choose correct venous access for anaesthetic administration and fluid therapy.

5. Be able to choose and administer the correct analgesic agent for the species involved.

6. Be aware of Health and Safety aspects of handling wild animals.

Underpinning knowledge

The candidate will be able to

1. list the points to be considered prior to attempting to restrain a wild animal.

2. list the procedures to be carried out prior to restraining a wild animal.

3. list the equipment which may be utilised to restrain the avian patient (including those more specialised items used for aggressive species).

4. state the rationale behind the use of chemical restraint.

5. list the procedures to be carried out prior to administration of chemical restraint.

6. state the anaesthetics available for sedation and premedication, their pros and cons.

7. state the anaesthetics available for full anaesthesia and their pros and cons.

8. describe the common British wildlife species respiratory physiology and anatomy and its relevance to anaesthesia.
9. list the methods for assessing the depth of anaesthesia for common wild animals

10. state the methods for assessing patient’s vital signs during anaesthesia

11. list the analgesics available for use post-operatively

12. state the fluid and supportive medication therapy available to the clinician during and after surgery
OUTCOME 4  Understand the principles of fluid therapy in British wildlife patients

Practical Activities

The candidate will be able to

1. Select the correct fluid type from a selection given
2. Select the correct site to administer fluids depending on the species and the disease/fluid loss being corrected
3. Select the correct equipment required to administer subcutaneous, intravenous, oral and intraosseous fluids from a selection given

Underpinning knowledge

The candidate will be able to

1. state the reasoning behind the use of fluid therapy in the wildlife patient
2. state the maintenance requirements of the wildlife patient
3. state why fluids are needed during the treatment of wildlife diseases
4. state why fluids are required post-operatively
5. list what fluid types are used in wildlife medicine
6. state when to use protein/vitamin B supplementation with fluid therapy
7. state when to use colloids and hypertonic fluids
8. describe blood transfusions in wild animals
9. state the use of oral rehydration solutions and their restrictions
10. perform a calculation of a wildlife patient’s fluid replacement needs and how to divide these over time
11. list the equipment required to administer fluid therapy
12. list the routes available and their variation between species groups for fluid therapy
13. state the pros and cons of different routes of fluid administration and how to decide on a specific route
OUTCOME 5  Have an overview of common diseases afflicting British wildlife and their therapies

Practical Activities

The candidate will be able to

1. Correctly choose the necessary equipment to administer a common medicine
2. Know where and how to administer a common medicine
3. Be able to identify the areas of a wild animal’s body to avoid when giving injections
4. Recognise the basic signs of a wildlife patient in respiratory distress
5. Be able to recognise an underweight avian patient and be able to roughly ‘body score’ them

Underpinning knowledge

The candidate will be able to

1. List the common diseases afflicting British wildlife patients –
   a). Feather/scales/fur and skin
   b). Digestive system
   c). Respiratory system
   d). Cardiovascular system
   e). Nervous system
   f). Reproductive system
   g). Musculo-skeletal system

2. List the treatment(s) of the above conditions (in brief)

3. State the routes of medication administration, subcutaneous as opposed to oral, intramuscular, intraperitoneal, intravenous and nebulisation therapy, as well as species and medicine type variations

4. State the diseases which predominate in certain species of wildlife patient
5. State the diseases of growing wildlife cases as opposed to adults
6. State the diseases of ageing wildlife cases as opposed to adults