

# Pre-anaesthetic assessment

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## Introduction

Benefits of evaluating veterinary patients before general anaesthesia are often underestimated. With the advancement of veterinary medicine and surgery, the veterinary surgeon nowadays will routinely anaesthetize older and sicker patients. At present, peri-anaesthetic mortality for dogs and cats is approximately 1 in 2,000 patients. By comparison, peri-anaesthetic mortality in people is approximately 1 in 10,000 patients. Thus, there is still room for veterinary surgeons to decrease peri-anaesthetic mortality rates. One approach to minimize morbidity and mortality is to identify at-risk patients and modify the anaesthetic plan accordingly.

The American Society of Anesthesiologists (ASA) has developed a scale to rate physical status (Figure 2.1). A patient is assigned a category status from 1 to 5. 1 denotes healthy, and 5 is moribund. An 'E' following the number denotes 'emergency'. This scale has been shown to be predictive of anaesthetic morbidity and mortality in veterinary patients. Animals with an ASA score of 3 or greater are almost four times more likely to suffer peri-anaesthetic complications

ASA scale	Physical description	Veterinary patient examples
1	Normal patient with no disease	Healthy patient for ovariohysterectomy or castration
2	Patient with mild systemic disease that does not limit normal function	Controlled diabetes mellitus, mild cardiac valve insufficiency
3	Patient with severe systemic disease that limits normal function	Uncontrolled diabetes mellitus, symptomatic heart disease
4	Patient with severe systemic disease that is a constant threat to life	Sepsis, organ failure, heart failure
5	Patient that is moribund and not expected to live 24 hours without surgery	Shock, multiple-organ failure, severe trauma
E	Describes patient as an emergency	Gastric dilatation–volvulus, respiratory distress

**2.1** American Society of Anesthesiologists (ASA) scale of physical status.

compared to those in ASA category 1 or 2. Thus, accurately assigning an ASA score is a proven way to identify at-risk patients. In order to assign an ASA status properly, a thorough pre-anaesthetic evaluation must be performed.

## Patient assessment

Veterinary patients are a heterogenous group, both in physical stature and disease state. Many companion animals are also anaesthetized for procedures other than surgery. Knowledge of the procedure can help direct the focus of a pre-anaesthetic evaluation, although the veterinary surgeon must resist focusing only on the obvious problem. Fractious or feral patients may require anaesthesia to facilitate examination, and may be healthy (feral cat for castration) or severely compromised (aggressive dog hit by car). Furthermore, patients may require anaesthesia to allow imaging or diagnostics (medical imaging, endoscopy, angiography). Again, patients range from healthy (radiographic examination for hip dysplasia) to severely compromised (magnetic resonance imaging for brain tumour). However, the vast majority of patients are anaesthetized to allow surgery. Patients range from healthy (routine ovariohysterectomy) to critically ill (intestinal obstruction). It is important to understand the surgical/diagnostic plan and whether anaesthesia is elective, scheduled or urgent. Pre-anaesthetic assessment must therefore be tailored to each patient.

## History

Each patient should have a complete history taken from the owner. This is an opportunity not only to gather useful information about the patient, but also to engage the owner and allow questions and concerns to be raised. Some animals cannot be handled for physical examination or diagnostic testing (wildlife or fractious animals), and the history may be the only knowledge of the patient the veterinary surgeon will have before anaesthesia is induced. The patient history should include the following details.

## Signalment

Basic information should include species, breed, age, gender and whether the patient has been neutered. Knowledge of breed characteristics and certain medical conditions pertinent to the breed can provide information about additional anaesthetic concerns (see

later). Age might influence whether further diagnostic tests are warranted, and influence choice of drugs and the doses used.

### Chief complaint/reason for surgery

This information should include duration and severity of the presenting problem. It should include any abnormal physical signs and any treatment received. Although this will narrow the focus, the veterinary surgeon should remain cautious, so as not to have 'tunnel vision', and remember to assess the whole patient.

### Complete medical history

This information should include any other pertinent medical history, including vaccination and, in relevant areas, heartworm status. It is important to ask the owner directly about each individual organ system (Figure 2.2) as many animals have concurrent diseases that could affect the way anaesthesia is managed. It is also useful to know if the animal has undergone anaesthesia before and whether there were any adverse effects. Good record keeping within a practice can provide useful information.

Body system/other	Points of interest
Owner	Complete contact information, special considerations, e.g. consent, 'do not resuscitate' orders
Medical history	Present and previous illness, surgery and anaesthetics, current medications, vaccination status, heartworm status
Pre-anaesthetic preparedness	Fasted, clean, signed consent form
General	Attitude, activity, appetite, gain or loss of weight
Integument	Itch, hair loss, wounds, infection
Cardiovascular system	Activity, stamina, cough, fainting episodes
Respiratory system	Cough, sneeze, wheeze, dyspnoea, gagging, change of voice
Gastrointestinal system	Faeces, vomiting, regurgitation
Genitourinary system	Urination, reproductive status, pregnancy
Central nervous system	Mentation, balance, tremor, seizure, aggression

#### 2.2

Guidelines on which areas to concentrate on while taking a patient's history.

## Preparation for anaesthesia

### Fasting/water deprivation

Fasting is routinely recommended before general anaesthesia to decrease the amount of food and fluid in the stomach, and decrease risk of aspiration. Fasting is considered unpleasant by many owners and can be deleterious in some patients. Young or thin animals or patients with a fast metabolism are at risk for hypoglycaemia. Patients with increased fluid

requirements (fever, renal insufficiency, diabetes) can quickly become dehydrated during long periods of water deprivation. In people, allowing an abbreviated fast does not result in increased morbidity in healthy patients. Furthermore, prolonged fasting in animals has been associated with increased incidence of reflux and increased gastric acidity. Based on this information, it is probably prudent to have a moderate fasting period (6–8 hours for food and 2–4 hours for water) before the premedication stage of anaesthesia for average, reasonably healthy patients.

### Owner comprehension and permission

Before anaesthesia, the owner should understand both anaesthetic and surgical risks. A frank discussion should take place about what to do in an emergency situation (e.g. 'do not resuscitate' orders). The owner should also sign a consent form (see Chapter 1).

### Cleanliness

Due to the hair coat of domestic pets, many veterinary surgeons recommend that all anaesthetic/surgical patients are recently bathed and are free of fleas and ticks. The patient's coat, season, geographical location and procedure performed should dictate whether this is necessary.

### Physical examination

Ideally, every patient should have a complete physical examination within the week before surgery and a further cursory examination on the day of anaesthesia. Patients presented for emergency anaesthesia should be evaluated as completely as possible. General assessment should include the following areas.

### Body condition score

Patients are generally given a score from 1 to 9 (1 is cachectic and 9 is obese). Body condition can provide information about chronicity of a disease process, and can serve as an alert for potential problems during anaesthesia. In general, obese animals have diminished cardiovascular function and are at risk for hypoventilation, while cachectic animals have poor reserves and are at risk for hypothermia and hypoglycaemia.

### Hydration

All patients should have hydration status evaluated. Skin turgor, moisture of mucous membranes and sunken eyes can all be used to assess hydration physically. Hydration estimation is important because dehydrated animals are likely to have decreased intravascular volume and electrolyte abnormalities. Whenever possible, rehydration and electrolyte stabilization should take place before anaesthesia (see Chapter 16).

### Cardiovascular system

All patients should have mucous membrane colour and capillary refill time assessed, and the heart auscultated for rate, rhythm and murmurs. Pulses should be examined for subjective assessment of vascular tone and synchronicity with heart sounds. Murmurs and arrhythmias can be indicators of significant cardiac dysfunction and should be further evaluated before anaesthesia (e.g. radiographs, electrocardiogram (ECG)).

### **Pulmonary system**

All patients should have breathing patterns observed at rest, colour of mucous membranes assessed and lungs auscultated for breath sounds. Additionally, the trachea should be palpated and an attempt made to elicit a cough. Inducible coughs can indicate tracheitis or collapsing trachea, both of which could increase peri-anaesthetic morbidity. Attention is directed to increased respiratory rates, dyspnoea, areas of diminished or wet breath sounds, crackles or wheezes. These changes can all indicate decreased pulmonary performance and the need for further assessment (e.g. radiographs, pulse oximetry, arterial blood gas measurement).

### **Gastrointestinal and urinary systems**

Abdominal palpation should be performed to identify discomfort or structural abnormalities. The gastrointestinal system is often considered irrelevant in the pre-anaesthetic evaluation, but disease states can have an effect on anaesthetized patients. Viscus dilation, pancreatitis and abdominal cavity inflammation are painful conditions. Enlargement of abdominal organs can impede venous return and place pressure on the diaphragm causing hypoventilation. Decreased venous return can decrease cardiac output causing low blood pressure. Impaired ventilation can result in hypoxaemia and hypercapnia.

### **Integument**

The skin should also be evaluated for infection and skin characteristics. Although this is often overlooked in a pre-anaesthetic examination, the health of the skin can affect how anaesthesia is performed. Catheters and epidural/spinal injections should not be placed through infected skin, as this increases the possibility of transferring infection to within the body. Additionally, skin characteristics can point to other concurrent disease processes (e.g. thin, friable skin to Cushing's disease; ulcerated skin to autoimmune diseases). Some breeds tend to have thicker skin, and this can make vein catheterization challenging.

### **Neurological system**

A basic neurological examination should be performed. Since all anaesthetics affect the central nervous system (CNS), it is prudent to find any problems before anaesthesia is induced. Patients with CNS depression are sensitive to many anaesthetic drugs and an exaggerated response may be observed with even low doses of anaesthetics. Animals that may have elevated intracranial pressure should be anaesthetized cautiously as intracranial pressure can increase further with certain drugs (e.g. ketamine), intubation and with hypercapnia (common during anaesthesia) (see Chapter 26). Patients with neuromuscular disease can have weakened respiratory musculature leading to hypoventilation and hypoxaemia under anaesthesia.

### **Clinical diagnostics**

In addition to a thorough physical examination, many patients may require additional tests before anaesthesia. Which tests are performed is based on patient age, surgical procedure, concurrent disease processes and the owner's ability to pay. Although it is

tempting to simply 'run every test', it is wiser to run tests on body systems where results will alter the anaesthetic plan. As more information is obtained, the risk assessment associated with anaesthesia may change and owners should be updated with this information before the animal is anaesthetized.

Although there is controversy regarding the percentage of patients that benefit from routinely running full pre-anaesthetic blood tests, it is clear that if testing is not performed, no abnormalities can be found. Many practices compromise by running inexpensive basic bloodwork prior to anaesthesia.

### **Packed cell volume, total solids, blood glucose and blood urea nitrogen**

Minimum bloodwork in young, otherwise healthy animals presented for elective procedures should consist of packed cell volume (PCV), total solids (TS), blood glucose and blood urea nitrogen (BUN). These four tests can detect anaemia, hypo-/hyperproteinaemia, kidney disease and hypo-/hyperglycaemia. This wealth of information can be obtained with little blood, equipment or cost. If any abnormalities are noted, then further testing or evaluation can be performed.

### **Complete blood count, serum chemistry and urinalysis**

In older or infirm animals, more comprehensive testing should be performed to screen for occult problems. In general, complete blood count (CBC), serum chemistry and urinalysis should be completed. These three tests can be diagnostic for diseases such as diabetes (see Chapter 25), or indicate the need for further tests (e.g. bile acids to check liver function).

### **Tests for heartworm**

Depending on the geographical location of a veterinary facility or travel history of the patient, prevalence of heartworm disease in dogs and cats can greatly vary. In endemic areas, heartworm status should be known before anaesthesia is induced, as heart failure and sudden death are possible with heartworm disease.

### **Tests for thyroid function**

Ideally, any animal that shows physical evidence of thyroid dysfunction should be evaluated before anaesthesia. Hypothyroidism in dogs is associated with obesity and a hypometabolic state. Hyperthyroid cats are generally underweight, have high metabolic demands and often have hypertrophic cardiomyopathy. Both of these thyroid conditions and subsequent effects on other organ systems increase anaesthetic risk. When possible, hypo- or hyperthyroid animals should be treated before the anaesthetic episode (see Chapter 25).

### **Coagulation profile**

Animals at risk for increased bleeding based on breed (e.g. Dobermann), disease (e.g. portosystemic shunt) or procedure (e.g. liver biopsy) should be screened for the presence of coagulopathies. When possible, blood coagulation tests or specific factor determination should be performed in advance of the scheduled procedure. Abnormal results can become

grounds to cancel elective surgical procedures due to a high risk of uncontrollable bleeding. Non-elective procedures must often proceed, but with knowledge that excessive bleeding might occur and the need for blood products will be increased (see Chapter 16).

### Radiological examination

The most used imaging modality in veterinary private practices remains radiography. Radiography can be used to assess the size and shape of many internal organs (heart, liver, kidney) and can identify abnormal organ position (e.g. gastric dilatation–volvulus (GDV)), structures (e.g. tumour) or densities (e.g. air, fluid). Radiographs can be taken for routine screening (post-trauma or geriatric patients) or when assessing a particular problem.

### Electrocardiography

Routine ECG screening is recommended for older animals, patients with evidence of cardiac disease or patients with underlying disease that might lead to arrhythmias (hyperkalaemia, splenomegaly, GDV, post-traumatic myocarditis). For veterinary surgeons who do not feel comfortable evaluating ECGs, advancements in technology now allow for ECG consultation with a cardiologist through a telephone line.

### Echocardiography

An echocardiographic examination should be performed in patients that have evidence of cardiac disease on physical examination, radiographical changes to the heart and/or an abnormal ECG. Echocardiography should also be performed in patients that have a disease associated with changes in cardiac function (e.g. feline hyperthyroidism). This examination will provide further information on anatomical or contractile changes. This information is useful for establishing anaesthetic risk, and to assess the ability of the cardiovascular system to cope with stress.

### Computed tomography and magnetic resonance imaging

More specialized diagnostics can provide even further information, but unfortunately these imaging modalities require general anaesthesia for veterinary species and are therefore rarely useful prior to induction of anaesthesia. Management of the patient for computed tomography or magnetic resonance imaging can be found in Chapter 26.

## Other anaesthetic considerations

### Recent trauma

Traumatized patients can have multiple changes or injuries that increase anaesthetic risk. Recently traumatized animals often require anaesthesia for surgical repair of obvious injuries (e.g. fractured limbs). It should be remembered that these patients often have more than one injury (see Chapters 19, 21 and 26). It is commonplace for these patients to have hidden injuries that are potentially life-threatening (e.g. pneumothorax). Traumatized patients should be evaluated for presence of shock, bleeding, abdominal or thoracic

injuries or cardiac abnormalities. It is imperative that the veterinary surgeon does not lose sight of the whole patient in a rush to fix the obvious problem.

### Breed considerations

While it is obvious that the Great Dane, Bulldog and Yorkshire Terrier are all dogs, they can require different anaesthetic management. Below is a short list of breeds that have known risk factors associated with anaesthesia/surgery.

#### Dobermann

Abnormal concentrations of von Willebrand factor occur in 73% of Dobermanns. With such a high frequency, it is reasonable that all Dobermanns are screened before elective surgery. If a Dobermann is presented for emergency anaesthesia and the status is unknown, the buccal mucosal bleeding time (BMBT) should be assessed. A dog deficient in von Willebrand factor or with prolonged BMBT may require additional treatment (desmopressin acetate, cryoprecipitate or whole blood) to limit bleeding during surgery (see Chapter 16).

#### Miniature Schnauzer

Miniature Schnauzers, particularly bitches, are at risk for developing sick sinus syndrome. They may appear normal on physical examination, but it is possible for occult disease to be unmasked by anaesthesia. It is therefore recommended that all Miniature Schnauzers have an ECG evaluated before any anaesthetic drugs are given. If sick sinus syndrome is detected before an elective procedure, the anaesthetic should be cancelled and the heart disease evaluated (see Chapter 19).

#### Boxer

Certain familial lines of Boxers appear to be quite sensitive to the effects of acepromazine, and can have an exaggerated response to the sedative and hypotensive effects of the drug. There are anecdotal reports of dogs fainting from what is assumed to be hypotension. Interestingly, bradycardia has been reported to occur alongside hypotension, prompting the recommendation that an anticholinergic (e.g. glycopyrronium) is used with acepromazine in Boxers or that acepromazine is avoided in this breed altogether.

#### Brachycephalic breeds

The brachycephalic breeds (e.g. Bulldog, Pug) are thick-necked dogs that often have small tracheas, elongated soft palates and stenotic nares. Additionally, the laryngeal mucous membranes are prone to swelling, which can compromise an already tenuous airway. Recommendations for these breeds include gentle intubation with an appropriately sized endotracheal tube (which might be smaller than expected based on the weight of the dog), and late extubation performed with the dog in sternal recumbency. Dogs of these breeds should be monitored post extubation for a number of hours for any sign of respiratory distress. Heavy sedation should be avoided unless the patient can be closely monitored with attention to oxygenation and ventilation.

### Greyhounds and sighthounds

Anaesthetic recovery from thiopental occurs through redistribution. The drug moves from brain to blood to fat and is eventually removed through hepatic metabolism. Therefore, dogs with low fat stores, either through genetics or disease, tend to have higher concentrations of intravenously administered drugs in circulating blood, and this can lead to lengthy recoveries and potential overdosing. Sighthounds tend to be lean dogs with a low fat:body mass ratio. In addition to lower fat deposits, Greyhounds are missing a liver enzyme needed for metabolism of barbiturates; therefore the effects can be prolonged (up to four times longer than in mixed breed dogs). Although barbiturates do not depress the cardiovascular system in Greyhounds or sighthounds any more than in other breeds, the prolonged recovery would suggest they not be used in these breeds, or used with care. There are better alternatives available for induction such as propofol or a ketamine/diazepam combination.

### Concurrent drug use

Many veterinary patients require anaesthesia while receiving medications for other disease processes. It is imperative that the drugs are identified and a decision made whether to discontinue their administration, or to avoid certain anaesthetic drugs.

### Antibiotics

Many animals will concurrently be receiving antibiotic therapy, although most do not interfere or cause a problem with anaesthesia. However, the aminoglycoside antibiotics (e.g. gentamicin) can be nephrotoxic. Patients receiving aminoglycosides should be screened for renal disease and precautions taken to limit renal damage under anaesthesia (i.e. good perfusion, good hydration). Additionally, the aminoglycosides can interfere with neuromuscular transmission and could potentiate the neuromuscular blockade from peripherally acting neuromuscular-blocking drugs (e.g. atracurium) or disease (e.g. myasthenia gravis).

### Cardiac drugs

Drugs for treatment of heart failure are becoming commonly used in veterinary practice. It is imperative the veterinary surgeon knows the class of drugs used and the potential effects during anaesthesia. In general, cardiac drugs should be continued during the peri-anaesthetic period and side effects should be anticipated.

**Angiotensin converting enzyme inhibitors:** Angiotensin converting enzyme (ACE) inhibitors (e.g. ramipril, enalapril, benazepril) are commonly used as vasodilators to prevent and treat heart failure (decrease afterload). These drugs interfere with the renin-angiotensin-aldosterone system and can result in clinically significant hypotension under anaesthesia.

**Cardiac glycosides:** Cardiac glycosides (e.g. digoxin) are positive inotropes used to prevent and treat heart failure as well as to treat some arrhythmias (increase cardiac contractility and output, and slow heart rate). Although these drugs allow the heart to work more

productively, there is a narrow therapeutic margin and overdoses can result in ECG and contractility abnormalities. Patients treated with cardiac glycosides are sensitive to hypomagnesaemia, hypokalaemia, hypovolaemia and hypoxaemia, and these conditions will increase ventricular arrhythmias. Patients receiving digoxin should not receive anticholinergics.

**Beta blockers:** Beta blockers (e.g. propranolol, esmolol) are class II anti-arrhythmics and block beta-1 and beta-2 adrenergic receptors. These drugs are primarily used to treat tachyarrhythmia and their use alongside anaesthetic drugs can result in bradycardia and decreased cardiac contractility.

### Analgesics

**Opioids:** Opioids (e.g. morphine, methadone, hydromorphone, fentanyl) are drugs that bind to opioid receptors and provide analgesia. Aside from analgesia these drugs can cause clinically significant bradycardia, second-degree heart block, respiratory depression and vomiting, and are synergistic with other anaesthetic drugs. Care should be taken routinely to monitor the patient's heart and respiratory rate when using these drugs.

**Tramadol:** This is by classification a mu opioid agonist, but analgesia is also from inhibition of noradrenaline and serotonin uptake. Tramadol is gaining favour in the veterinary community because it is not controlled, has reasonable efficacy and can be administered orally. However, tramadol should be used with caution in patients taking monoamine oxidase (MAO) inhibitors or tricyclic antidepressants, which also increase circulating serotonin levels. Elevated serotonin levels can lead to 'serotonin syndrome' which can be expressed as drowsiness, restlessness, altered mentation, muscle twitching, high body temperature, shivering, diarrhoea, unconsciousness and death.

### Non-steroidal anti-inflammatory drugs (NSAIDs):

These are frequently used for analgesia in anaesthetized patients. These drugs are potent analgesics through interference with prostaglandin synthesis in the arachidonic acid inflammatory pathway. Although inhibition of certain prostaglandins results in analgesia, inhibition of other prostaglandins necessary for normal physiological functions can be detrimental. NSAIDs can interfere with gastric mucosal protection, renal blood flow and coagulation. Different NSAIDs have different side effects and safety profiles, particularly with different species, so the veterinary surgeon must be familiar with the particular NSAID and the species in which it is used. Patients that are dehydrated, hypovolaemic, hypotensive or who might become this way, should not be given NSAIDs. Furthermore, patients with a history of vomiting or diarrhoea, or those given corticosteroids should also not receive NSAIDs.

### N-methyl-D-aspartate (NMDA) antagonists

**Ketamine and amantadine:** These are used to treat chronic pain states. Ketamine is routinely used as an injectable anaesthetic, but can be used at

sub-anaesthetic doses to treat refractory pain. When used at low doses it is unlikely that either of these drugs would significantly interact with other anaesthetics.

#### Behaviour modification drugs

**Selegiline (L-deprenyl):** This is used to treat dogs with canine cognitive disorder ('old dog dementia') and separation anxiety. Selegiline is an MAO inhibitor which results in increased levels of dopamine as well as other monoamines, such as serotonin. Dogs receiving selegiline should not be given pethidine (meperidine) or tramadol, both of which interfere with serotonin reuptake and can lead to 'serotonin syndrome' (see earlier).

**Clomipramine:** This is a tricyclic antidepressant that prevents reuptake of serotonin and noradrenaline. The same precautions should be taken as for selegiline (see above).

#### Incontinence drugs

**Phenylpropanolamine:** This is a sympathomimetic which increases urethral sphincter tone due to increased noradrenaline release. The increase in noradrenaline can result in clinical hypertension and/or tachycardia. Tramadol also inhibits reuptake of noradrenaline and should be avoided in patients taking phenylpropanolamine.

**Ephedrine/pseudoephedrine:** These are sympathomimetics which increase urethral sphincter tone (pseudo-ephedrine is an isomer of ephedrine) by increasing noradrenaline. Clinical signs and cautions are the same as for phenylpropanolamine (see above).

#### Anticonvulsants

**Phenobarbital:** This is a barbiturate commonly used to treat epilepsy. Phenobarbital is a gamma amino butyric acid (GABA) receptor agonist. Many other anaesthetic drugs work via the GABA receptor, such as thiopental, pentobarbital, benzodiazepines (diazepam, midazolam) and inhalants (isoflurane). Therefore, patients treated with phenobarbital may have exaggerated CNS effects to these anaesthetic drugs (synergy). In general, it is best to continue phenobarbital therapy and adjust the anaesthetic drug doses accordingly.

#### Chemotherapy drugs

There are dozens if not hundreds of drugs used for cancer treatment. Most of these drugs can affect the bone marrow while others may be nephrotoxic, cardiotoxic or hepatotoxic. It is beyond the scope of this chapter to list all the drugs, but it is imperative that

the veterinary surgeon is prepared to look for such changes in any patient undergoing chemotherapy and also requiring anaesthesia.

#### Nutraceuticals

Many owners administer a variety of 'natural' therapies to their pets, and often assume they are benign, and therefore do not report their use when asked if their pets receive any 'medications'. However, many of the over-the-counter remedies and nutraceuticals have chemical properties that can react with anaesthetic drugs. For example, St John's wort has been linked to serotonin syndrome in people also taking tricyclic antidepressants or MAO inhibitors. From this, it is reasonable to assume that St John's wort might have negative interactions with tramadol (see earlier). It is therefore wise to ask if the owner is giving 'anything else' and research the potential interactions of any non-medically prescribed drug with which a veterinary surgeon might not be familiar.

#### Concurrent disease states

Many patients requiring anaesthesia will have concurrent diseases. It is prudent to be familiar with the diseases and how they might affect the patient in the peri-anaesthetic period (see Chapters 17–28).

#### Assigning ASA category

After completion of a thorough physical examination and interpretation of the data from ancillary tests, an ASA physical status can be assigned. Knowing a patient's physical status will better aid the veterinary surgeon in assigning relative anaesthetic risk for that patient, and in altering the anaesthetic protocol accordingly.

#### References and further reading

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