Triage and emergency stabilisation before the vet arrives.

The purpose of triage is to identify cases which are true emergencies, and to prioritise treatment to maximise the number of survivors.

The veterinary nurse plays an important role in triage and emergency stabilisation of veterinary patients. This occurs at various stages, from initial contact with the owner (often by telephone), assisting or advising on transport to the hospital, and the initial assessment and treatment once the animal arrives. It should also be remembered that stable inpatients may deteriorate during hospitalisation and require emergency or critical care.

**Telephone triage:**
The veterinary nurse is often the first person to communicate with the owner.

The main information that must be obtained is whether or not the patient requires immediate veterinary attention. This is difficult because most owners have limited medical or veterinary experience. Some owners exaggerate, whilst others underestimate, the severity of their pet’s illness. It is essential that concise and accurate information is obtained, to allow the veterinary surgeon or nurse to decide what action is necessary.

Whenever possible, a description of signs should be sought rather than the owner’s interpretation of what has happened to avoid misleading information. For example, owners may use the term “seizure” to describe syncope and muscle tremors as well as true seizures. Information regarding the nature and severity of illness, rapidity of onset and progression should be obtained. Clinical information concerning the level of consciousness, breathing pattern, heart rate, ability to stand, abdominal distension etc should also be ascertained. Further history, such as known access to toxins, may be appropriate in individual cases.

If immediate treatment could be beneficial, appropriate advice should be given. For example, animals with acute haemorrhage should have pressure applied to wounds, dyspnoeic animal should be maintained in sternal recumbency, animals with insulin overdosage can be fed and seizing animals should be placed in area where they are unlikely to knock or traumatise themselves.

Proper questioning allows preparation for an emergency to begin before the animal ever arrives in the clinic.

**Transport of animals to the hospital:**
It may or may not be possible for an owner to transport their pet to the veterinary clinic. Some animals require special handling. Animals with severe trauma may be carried with a board or in a
confined space to prevent additional injury. Owners must be warned that even the friendliest dog or cat can become severely aggressive because of pain and fear.

**Triage and initial assessment within the veterinary clinic:**
Initial triage is performed to assess the severity of the emergency, whether immediate attention is necessary, and to allow identification of life-threatening abnormalities. It is by no means a comprehensive veterinary clinical examination. Such examinations can be performed once the animal is stable.

It is important to complete triage before proceeding with a full clinical examination or treatment because the most obvious abnormality is often not the most life-threatening. It may take only 1-2 minutes to perform initial triage and can often be done whilst waiting for the vet to arrive.

**The following key physical parameters should be assessed:**

1. **Airway**
2. **Breathing**
3. **Circulation**
4. **Neurologic status**
5. **Urinary system**
6. **Reproductive system**
7. **Temperature**
8. **Trauma**

**1. Airway**
A patent airway must be maintained. Obvious obstruction or progressive swelling with the potential for future airway obstruction should be assessed.

**2. Breathing**
Respiratory rate and effort should be assessed. Tachypnoea is the most common abnormality of rate. Abnormally slow, deep respiratory patterns are less common. Dyspnoea, abdominal breathing, chest wall movements, air-hunger and open-mouthed breathing should be noted. Dyspnoea in cats (especially open-mouthed breathing) may be a sign of severely advanced respiratory disease, and it may be necessary to provide immediate treatment.

**3. Circulation**
Mucous membrane colour, capillary refill time, heart rate, pulse rate, pulse character, hydration status and evidence of overt haemorrhage all provide useful information on the stability of the circulatory system. Mucous membranes may be normal, pale, congested or cyanotic. Pale
mucous membranes may indicate anaemia or hypovolaemia with peripheral vasoconstriction. Both of these disorders may be associated with dullness, tachycardia, hypovolaemia and reduced pulse strength. Capillary refill time should be 1-2 seconds. Heart rates between 70 and 120bpm in dogs, and between 160 and 180bpm in cats are considered normal. However, this must be interpreted in conjunction with other clinical signs. A normal heart rate in a painful, frightened or hypovolaemic animal is inappropriate, and requires further investigation. Tachycardia may be physiological (pain, fear, excitement) or due to shock, hypovolaemia, hypoxia, or cardiac disease. Bradycardia can be associated with cardiac arrhythmias as well as a variety of metabolic and neurologic diseases. Pulses may be normal, weak, bounding, snappy, thready or irregular, depending on the underlying abnormality. Hydration is assessed by mucous membrane tackiness, skin tenting (normally <1 second), sunken eyes etc. If haemorrhage is present, the source should be identified and the severity determined. External haemorrhage is often the most concerning finding to the owner. However, internal injuries or shock are more likely to result in death.

4. Neurologic status
Unconsciousness, depression, stupor or dementia may be present. Decreased mentation is caused by intracranial (e.g. haemorrhage, elevated intracranial pressure, neoplasia) or metabolic disease. Excitement may be due fear, pain or certain toxins. Seizures are caused by a variety of intracranial and extracranial disorders.

5. Urinary system
This can be difficult to assess at initial triage. Failure to produce urine could reflect acute renal failure, urinary tract rupture or urinary tract obstruction. If anuria persists, further investigations are warranted.

6. Reproductive system
Dystocia can be an emergency for both mother and offspring. Non-productive straining, absence of straining despite evidence of remaining foetuses or abnormal discharges may be detected.

7. Temperature
Temperature may be elevated with hyperthermia (e.g. excitement, activity (including seizures) or elevated environmental temperatures) or pyrexia associated with inflammation, infection, immune-mediated diseases or neoplasia. Reduced temperature is indicative of reduced perfusion or excessive loss (exposure).

8. Trauma
All animals with trauma should be treated as an emergency. It may take time for clinical signs of internal injuries to appear, such as internal haemorrhage or traumatic brain injuries. These animals should be closely monitored for deterioration even if they appear relatively normal at presentation.

**Emergency stabilisation:**
Once problems have been identified at initial triage, steps may be taken to stabilise the patient.

1. **Airway**
If the airway is obstructed, it may be necessary to pass an endotracheal tube. Tracheostomy may be necessary once the veterinary surgeon arrives if the obstruction is within the larynx / proximal trachea. Nasal discharges / saliva should be cleared from the airways.

2. **Breathing**
If dyspnoea is present, Oxygen should be provided. If severe, handling should be minimised and further procedures postponed until some dyspnoea has abated. Keeping animals in a cool environment and in sternal recumbency is helpful. Medical treatment may be necessary e.g. frusemide if pulmonary oedema is suspected or bronchodilators for acute feline allergic bronchitis.

3. **Circulation**
If shock is present, rapid intravenous fluid therapy should be immediately commenced (except when cardiogenic shock is present). Subcutaneous fluids should not be administered. Anaemic animals benefit from cage rest and oxygen supplementation; however, if severe, blood transfusion may be necessary. Dehydration is rarely life threatening, and replacement of such fluid deficits can be undertaken more gradually. Cage rest and oxygen supplementation are also beneficial for animals in cardiac failure. Diuretics, anti-arrhythmic drugs or other agents may be necessary.

4. **Neurologic system**
Altered mentation is typically addressed by treatment of the underlying disorder. Very distressed animals should be sedated. If seizures are present, attempts should first be made to exclude hypoglycaemia by measuring the blood glucose concentration. This can easily be performed with a handheld glucose meter at the time of placement of the intravenous catheter. If present, intravenous glucose can slowly be administered or glucose gel (e.g. Glucogel) applied to the
gums. Diazepam or phenobarbitone may be administered intravenously once hypoglycaemia is excluded. Diazepam may be given per rectum if intravenous access cannot be obtained.

5. Urinary system
Urinary tract obstructions require urine drainage (cystocentesis or catheterisation) and correction of metabolic abnormalities.

6. Reproductive system
Animals will be more likely to give birth when in familiar and comfortable surroundings. The veterinary surgeon will need to assess the individual patient to decide whether medical or surgical management is appropriate.

7. Temperature
Severe hyperthermia (>41.5°C) may be associated with permanent organ damage or DIC. Animals with hyperthermia >41°C which show obvious attempts to dissipate heat, or those that are comatose, require total body cooling and supportive care. Often dampening the coat with sprayed cool water and applying a fan is most effective. Ice packs and cold water baths may lead to peripheral vasoconstriction and reduced ability to dissipate heat. Cooled intravenous fluids or enemas may be beneficial. Hypothermia may be corrected with a combination of insulation and active warming (heat pads, hot air circulators, infrared lights etc). Care should be taken to avoid burns. Severely ill animals may be incapable of moving away from an excessively hot heat source.

8. Trauma
Severe haemorrhage should be initially controlled by direct pressure or tourniquet. Ischaemic damage may occur if tourniquets are applied for prolonged periods. Animals with spinal trauma or fractures should be confined and moved as little as possible to avoid further injury. Animals with head trauma should have their neck maintained in a straight position and jugular compression / venipuncture avoided.