

# **Triage and the Approach to the Emergency Patient**

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## **Introduction**

Successful management of the emergency patient requires the veterinary practice to be adequately prepared and equipped. The aim of this presentation is to facilitate veterinarians in practice to prepare their clinic for the emergency patients arrival, so that management of the patient can take place without unnecessary delay.

There are five steps to preparing the veterinary clinic for the arrival and initial management of an emergency patient. These are outlined as follows:

1. Recognition of Patients with Life-Threatening Disease
2. Having adequate staff and equipment preparedness to deal with patients with life-threatening disease
3. Having an effective case-ranking system, so that the most urgent cases are attended to first, while less urgent cases are managed when time and personnel availability permit
4. Having an organized system of history taking and initial examination that allows identification of life-threatening abnormalities on patient arrival at the clinic
5. Having a systematic approach to life support and patient stabilization

We will deal with each of these five points during the course of this lecture.

Triage is derived from a French word, meaning "to sort". When applied to veterinary or human medicine, triage is a method used to classify patients according to the urgency of their need for emergency treatment or intervention.

In a busy practice, it is necessary to prioritize patients on arrival at the practice to ensure that unstable or potentially unstable patients do not deteriorate while waiting for medical attention. In order to do this effectively, all veterinarians and technicians/nurses must be familiar with the conditions and potential problems commonly associated with the development of life-threatening consequences, how to recognize them, and how to intervene if necessary.

## **Effective Triage – Step 1: Recognition of Life-Threatening Disease**

Without recognition of life-threatening disease processes and their potential sequela, veterinarians, receptionists and nurses cannot effectively triage patients, which will inevitably result in increasing patient morbidity and mortality.

Typically, life-threatening diseases are most commonly associated with disorders of the cardiac, pulmonary, and neurological systems. In addition, environmental injuries are commonly associated with severe illness, as are many intra-abdominal disorders.

The following table lists many problems that may be identified in emergency or critical patients that require immediate attention (Table 1).

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**Table 1.** Problems Identified at triage requiring immediate attention

<b>Cardiovascular</b> <ol style="list-style-type: none"> <li>1. Cardiac arrest</li> <li>2. Presence of shock</li> <li>3. Pale mucous membranes</li> <li>4. Slow CRT</li> <li>5. Weak or thready pulses</li> <li>6. Absent pulses</li> <li>7. Hemorrhage</li> <li>8. Dark Mucus membranes</li> <li>9. Tachycardia (dog &gt; 160, cat &gt; 220)</li> <li>10. Bradycardia (dog &lt; 70, cat &lt; 150)</li> <li>11. Pulse deficits, arrhythmias</li> <li>12. Collapse</li> </ol>	<b>Respiratory</b> <ol style="list-style-type: none"> <li>1. Rapid, shallow respiration</li> <li>2. Upper airway obstruction</li> <li>3. Labored breathing, gasping, open mouth breathing</li> <li>4. Cyanosis</li> <li>5. Pulmonary wheezes or crackles on auscultation</li> <li>6. Chest trauma</li> <li>7. Penetrating chest injuries or wounds</li> <li>8. Rib Fractures</li> <li>9. Flail chest</li> </ol>	<b>Neurological</b> <ol style="list-style-type: none"> <li>1. Seizures, or a history of seizures</li> <li>2. Stupor</li> <li>3. Coma</li> <li>4. Head trauma</li> <li>5. History of known, or suspected toxin ingestion</li> <li>6. Acute paraparesis or paraplegia</li> </ol>
<b>Urinary/Reproductive</b> <ol style="list-style-type: none"> <li>1. Inability to urinate</li> <li>2. History of ethylene glycol ingestion</li> <li>3. Large, painful bladder on palpation</li> <li>4. No palpable bladder following trauma</li> <li>5. Stranguria or dysuria</li> <li>6. Hematuria</li> <li>7. Dystocia</li> </ol>	<b>Environmental Injury</b> <ol style="list-style-type: none"> <li>1. Hypothermia/Frostbite</li> <li>2. Hyperthermia</li> <li>3. Near-drowning</li> <li>4. Electrocutation</li> <li>5. Smoke Inhalation</li> <li>6. Burns</li> <li>7. Toxin ingestion</li> <li>8. Snake bite</li> <li>9. Tick paralysis</li> <li>10. Automobile accidents</li> <li>11. Animal attacks</li> <li>12. Fall from height</li> </ol>	<b>Abdominal Disorders</b> <ol style="list-style-type: none"> <li>1. Profuse vomiting or diarrhoea</li> <li>2. Abdominal pain</li> <li>3. Abdominal distension or altered conformation</li> <li>4. Dehiscence of an abdominal surgical wound</li> <li>5. Organ prolapse</li> <li>6. Gastric distension</li> <li>7. Other</li> <li>8. Ocular injury</li> <li>9. Fractures</li> </ol>

All animals should be evaluated by a veterinarian or a veterinary technician within 1 minute of arrival at the veterinary clinic. Patients with life-threatening problems should be taken directly to the emergency treatment area for immediate therapy; stable patients can wait with the owner until a veterinarian is available.

Our goal is to select and treat first those patients that have had serious traumatic injury or are suffering from acute illness, in order to prevent serious catastrophic consequences. In patients who present with severe injuries or illness, the speed and quality of emergency care determines whether major complications or death will result.

## Effective Triage - Step 2: Be Prepared

It is one thing to recognize that an animal may have critical or emergency disease at triage. However, without preparedness, treatment of the emergency patient will at best be delayed, and at worst, result in death of the patient. So, how do we become prepared for emergency and critically ill patients? At the Animal Emergency Centre, we use a four-tiered approach to emergency preparedness.

1. Education
  - a. Tutorials and conference education – in-house and external education for all staff members helps veterinarians and support staff (including receptionists) maintain up-to-date knowledge, and can increase team awareness of interventions that may improve patient survival.

- b. Practical training sessions – allow all staff (again, including receptionists) to become familiar with techniques used in basic and advanced life support. These techniques include endotracheal intubation, positive pressure ventilation, intravenous catheter placement, IV fluid set-up, ECG setup, and preparing equipment for centesis.
2. The Emergency “Ready Area” – in all practices, an area should be designated as an emergency “ready area”, to enable rapid treatment of acute life-threatening situations such as cardiac arrest. This area is ideally located in a central area within the clinic. Emergency equipment necessary to perform basic and advanced life-support should be readily accessible in this area at all times, including
  - a. An oxygen supply
  - b. Endotracheal tubes
  - c. Anesthetic equipment
  - d. Ambu-bag
  - e. IV catheters
  - f. IV fluid pumps
  - g. Needles, syringes, centesis
  - h. Emergency drugs
  - i. Good light source

Suction apparatus, ECG and defibrillation equipment should be readily accessible also. Many of these items may be organized into a trolley or “crash cart”. Drawers or containers used to house equipment should be clearly labelled for ready identification. Stock levels in the ready area should be checked following each use of the area, or on a weekly basis, whichever comes first.

An in-house laboratory allows rapid determination of PCV/TP, blood glucose and ACT. A good quality microscope and ready access to hematology and serum biochemistry will offer significant advantages in case evaluation. Being able to perform cytology is an advantage.

3. The Team Approach - Trauma resuscitation requires a team approach. The success of a critical care and emergency facility is largely dependant on the personnel staffing the facility, their interrelationships, and their willingness to work towards a common goal of coordinated veterinary care. All staff members are integral to the team. Receptionists, nurses and vets each have different skill-sets, enabling each team member to contribute to the success of treatment for any given patient. We use training sessions and staff meetings to reinforce each individuals skill, and their part in the triage and emergency treatment plan for our patients.
  4. Standard Operating Procedures (SOP's) - Trauma protocols should be prepared and be on-hand in the ready area. Numerous human studies have shown that SOP's reduce patient mortality and morbidity. They ensure standardized treatment for each patient, and aid in ensuring important diagnostic steps and treatment steps are not overlooked. The form of any practice SOP may vary depending on your individual preferences. We find that a combination of written and visual algorithms suit most people within our practice. An example of an SOP is provided in appendix 1 at the end of the notes. SOP's are particularly useful if you see emergency cases infrequently, or if there are new or relatively inexperienced staff assisting with triage and patient stabilization. Protocols should be reviewed regularly.

### **Effective Triage – Step 3: Establish a Triage Classification System**

The patient classification system is based on the urgency of needed treatment, and facilitates the prioritizing of case management when there is more than one patient presenting at any given time.

**Class I:** Patients placed in Class I are the most seriously ill. They include the most urgent, catastrophic patients that must receive treatment immediately, within seconds. These include pets suffering from traumatic respiratory failure, cardiopulmonary arrest or airway obstruction. All unconscious animals should be included in this category.

**Class II:** These are very severely ill, critical patients. Patients in class II require treatment within minutes (up to 1 hour following the onset of severe symptoms) of presentation to the emergency clinic. All patients suffering multiple injuries, shock or bleeding but have adequate airway and ventilatory function are included in this category. Many disorders, including urinary tract obstruction, gastrointestinal torsion, burn victims, and those with penetrating wounds are placed in category II. These patients respond most favorably when treatment is provided within the first hour following their symptoms or traumatic injury.

**Class III:** Patients in this category require definitive management within a few hours. Patients in this category must not be in shock, and must have adequate ventilatory and cardiovascular function. Patients with superficial wounds, minor trauma, etc are placed in this category

**Class IV:** These patients are less serious but still require veterinary attention. Most patients in this category are non-trauma related and are presented for another problem such as mild vomiting, diarrhoea, or lameness. (i.e. the rest).

The classification class of the patient can change rapidly during the first few hours of admission to the hospital. It is therefore extremely important that veterinary and support staff continually re-evaluate patients on a regular basis to ensure their triage classification is correct, so that appropriate veterinary attention is given to the patients in the most timely manner. If there is concern regarding a patient in a particular triage class, place the patient in the more serious class.

Ensure all staff is aware of your triage system and you communicate the seriousness of the patient to all staff necessary.

### **Effective Triage – Step 4: Arrival at the Veterinary Clinic**

The nurse or the receptionist is the first person to see the emergent patient so they need to be trained in recognition of life threatening conditions requiring immediate treatment and triage of multiple patients (Table 1).

The reception and nursing staff also play an important role in the emotional support of the client while assessment and emergency treatment are initiated. Never under-estimate the importance of continually updating the client on the progress of their pet during the assessment and basic life-support process.

As we have mentioned, all patients arriving at the clinic should be evaluated by a member of staff within 1 minute of arrival at the clinic. All staff members should be familiar with the recognition of life-threatening, or potentially life-threatening conditions. In most instances, initial evaluation includes a brief history and a primary survey.

### Acquiring an Adequate History

A full medical history is essential to the effective treatment of the emergency patient. To do this successfully the veterinary team should establish a set protocol of questions that covers most situations within their geographic location.

The initial questions should be *why are the owners presenting the pet for care and how long has this specific condition been occurring*. It is important to gain the client's perspective of what their concerns are with the pet, since their perception of an emergency can be dramatically different from the pet's presentation. Once this is defined, the veterinary team will have an easier time discussing the overall concerns of the pet.

Although history is of key importance for proper evaluation of the patient, acquiring a thorough medical history may have to occur while or after the pet is being treated. Some general questions are:

1. **"Previous History of Medical Disease?"** In an emergency, there are times that clients will forget to inform the medical staff that their pet has a long-term medical condition.
2. **"Current medications?"** Clients are also sometimes unaware of drug interactions and side effects, which may produce serious health concerns.
3. **"Access to potential poisons, or medications"** With this question, do not forget to stress to the client that there could be human medications and drugs that the pet may have eaten, that may be causing the pet's health concerns
4. **"Are there any types of poisonous plant, insect or animal the pet could have come in contact with?"** This question is dependent on the geographic location of the hospital.
5. **"Is there any chance of physical trauma?"**
6. **"Has the pet had a history of Coughing / Sneezing / Vomiting / Diarrhea / Increased Thirst / Increased Urination?"** Some acute and life threatening disease can occur secondary to a chronic condition.
7. **"Has the animal shown any signs of collapse, weakness of a decreased ability to exercise?"** Decreased ability to exercise or the presence of collapse or weakness may indicate cardiac, neurological, Hemopoietic, degenerative neoplastic or other condition that may not be picked up in an initial assessment.
8. **"Has the pet shown any abnormal neurologic behavior?"** Abnormal neurologic signs such as nystagmus, seizures, aggression, changes in appetite, apparent loss of training, or acute blindness can at times point to specific central nervous system disease.
9. **"Does the pet have an affinity to eat abnormal things?"** Clients are sometimes unaware that pet toys, rocks, string, ribbon and other foreign bodies can pose serious intestinal obstruction.
10. **"Has there been a history of recent travel?"** Animals with a regular travel history can be susceptible to diseases in other geographical regions.
11. **"Medical history of other, in-contact animals?"**
12. **"Is the pet's vaccinations and worming history current?"**

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The nature of the questions may be varied, depending on whether the patient presents to the clinic with a history of trauma, or a history of a medical problem.

### The Primary Survey

The primary survey is the initial evaluation of the patient as it presents to the clinic. Special attention is directed to airway, breathing, circulation, and neurological status. Life-threatening conditions are treated immediately before completion of the examination. A secondary, more exhaustive physical and laboratory examination can be completed once the life-threatening problems have been stabilized. The following algorithm is listed in a way that problems are treated as they arise, or are found in the primary survey.

Visually assess the patient from a distance, and assess the following

1. Airway and Breathing
  - a. Determine if the animal is attempting to breathe
  - b. Assess airway patency
  - c. Assess respiratory effort – note any increase in inspiratory or expiratory effort.  
Remember that expiration is a passive phase of respiration
  - d. Assess respiratory pattern and respiratory rate
  - e. Assess posture during breathing and respiratory cycle
  - f. Note any respiratory noises
  - g. Determine the presence or absence of gag and swallow reflexes
  - h. Observe, palpate and listen to the thorax.
  - i. Auscultate the lungs bilaterally
  - j. Injuries to the skin over the thorax and cranial abdomen should be noted, along with any loss of chest wall integrity, and the presence of subcutaneous emphysema, and the presence of any blood or secretions from the mouth or nares

Any abnormality found during evaluation of airway and breathing should prompt immediate action from the emergency team before the primary survey is completed (see below)
2. Circulation
  - a. Determine if the heart is beating
  - b. Evaluate mucous membrane color
  - c. Evaluate capillary refill time
  - d. Evaluate pulse quality and pulse rate
  - e. Evaluate heart with auscultation, while simultaneously palpating femoral pulses (aids in detection of cardiac dysrhythmias)
  - f. Note the presence of any heart murmurs or gallop rhythms

Any abnormality found during evaluation of circulation should prompt immediate action from the emergency team before the primary survey is completed
3. Neurological Status – any alteration of mental awareness or responsiveness should prompt immediate action from the emergency team
4. The primary survey ends with a very rapid observation and palpation assessment of the spinal column, limbs, and abdominal, flank and pelvic regions.

**The primary survey should be completed in 30-60 seconds.**

NOTE: it is important from an occupational health and safety perspective to ensure that both owners and attending staff are safe at all times. Approach the animal from a rostral direction, noting the patient's level of awareness and reactions to movement. Ask the owner questions concerning the animal's temperament. If there is doubt about the temperament of the animal, cover the patient's head, or place a muzzle prior to handling and examination.

### **Effective Triage – Step 5: Life Support and Patient Stabilization**

Following the primary survey and triage classification, patients either will be in the treatment area, or will be in the waiting room, waiting for assessment. There is no in-between area for emergency patients. It is important to stress that repeated evaluation of the patient is an essential component of emergency medicine – without repeated examination and evaluation of our patients, we are unable to assess the efficacy of our therapeutic interventions, and our patients suffer as a result. As with the primary survey, in basic life support, we concentrate on the respiratory, circulatory and neurological systems. Thereafter, a complete physical examination is carried out in order to fully evaluate any concurrent or underlying disease process and affect a therapeutic management plan accordingly.

### **Conclusion**

Effective triage encompasses many of the most important aspects of emergency and critical care as follows:

1. Having a sound understanding of conditions that are life threatening, or potentially life-threatening to a patient.
2. Astute observation of the patient
3. Having support staff that are knowledgeable, and that work well under conditions of stress
4. Having a well-organized treatment ready-area
5. Following a well-defined set of guidelines for identification and management of emergency patients
6. Constant re-evaluation of patients to ensure that treatment is delivered in a timely and efficient manner.

Adherence to these aspects of veterinary practice helps to ensure that emergency and critically ill patients are managed in accordance with acceptable standards of care and attention. Failure to follow a systematic and ordered approach to these patients leads to unnecessary treatment delay, and increasing patient morbidity and mortality.

### **References**

1. Macintyre, D.K., Drobatz, K.J., Haskins, S.C., Saxon, W.D., "Approach to the Emergency Patient" In *Manual of Small Animal Emergency and Critical Care Medicine*, LWW, 2005, P3-11.
2. Macintyre, D.K., Drobatz, K.J., Haskins, S.C., Saxon, W.D., "Emergency Room Readiness" In *Manual of Small Animal Emergency and Critical Care Medicine*, LWW, 2005, P12-15.
3. Buras, J.A., Adler, J.N., "Resuscitation" In *NVMS Emergency Medicine*, Plantz/Adler (Ed), LWW, 1998, P3-33.

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4. Raffe, M. (Section Editor), "Emergency Care", In Handbook of Veterinary Procedures and Emergency Treatment, 6<sup>th</sup> Edition, Bistner/Ford (Ed), Saunders Publishing Co, 1995, P2-245.
5. Hopper, K., "Triage – Initial Patient Assessment", In Proceedings 358, Post Graduate Foundation in Veterinary Science, University of Sydney, P43-49.
6. Crowe, D.T., "Triage and Trauma Management", In Veterinary Emergency and Critical Care Medicine, Murtaugh/Kaplan (Ed), Mosby Yearbook, 1992, P77-121.
7. Costello, M., "Feline Trauma" In IVECCS Symposium 2004, P835-839.
8. Crowe, D.T., "First Aid, Transport and Triage of the Multi-trauma Victim", In IVECCS Symposium, 2004, P851-858.
9. Eddleman, L.A., "Multiple Trauma", In IVECCS Symposium, 2004, P939-942.
10. Hackett, T., "Environmental Emergencies", In Multi-Disciplinary Systems Review, VECCS Symposium, 2004, P55-64.
11. Davis, H., "Triage in the Emergency Room", In Atlantic Coast Veterinary Conference, 2001.
12. Rosenfeld, A.J., Soderstrom, S., "The True Nature of Triage: Concepts of Emergency Evaluation, In ACVIM Forum, 2002.