With any equine anesthesia comes risk of death. Statistics of the risk were gathered in a large worldwide study which is where the data below is being reported from. The death rate for healthy horses undergoing anesthesia is about 0.9% (1:100 horses). When you add in sick and emergency patients such as with colic, the rate of death increased to 1.9% (1:50 horses). Compare this to 1:2065 and 1:1483, the numbers in cats and dogs respectively. Obviously, the risk of death in horses is far greater than in small animal patients.

This data makes pre-operative work-up and patient stabilization extremely important as the anesthetist needs every advantage during the anesthetic period to ensure a safe and positive outcome. Because equine anesthesia is NEVER without risk, the anesthetist becomes in charge of risk management. The risks to the patient range from skin wounds, through myopathies and neuropathies to death. The risk to both anesthesia and surgical staff can not be overlooked either. Therefore, determining the risks and selecting the best protocol for controlling these risks and their adverse side effects, is the primary responsibility of the anesthetist (with the help and support of the surgical staff).

Classification of the physical and health status of the equine patient can be accomplished by using the ASA system borrowed from the American Society of Anesthesiologists. Using the patient history, physical examination and laboratory results, the patient is rated and put into one of five categories listed below. These classifications are based on physical status and not risk factors. Therefore, they are not as helpful in our equine patients but should be used as a guide.

ASA CLASSIFICATION SYSTEM

ASA 1  A healthy horse.
ASA 2  Horse with mild systemic disease (mild anemia, mild recurrent Airway obstruction)
ASA 3  Horse with severe systemic disease (severe anemia, strangles)
ASA 4  A horse with severe systemic disease that is a constant threat to Life (ruptured bladder, intestinal incident)
ASA 5  A moribund horse not expected to live for more than 24 hours (foal With a uroperitoneum with severe mettabolic damage)
E  The letter E is added to any classification when it is an emergency Procedure

The first step in the patient work-up is the history. Many times this is more difficult than it sounds. Someone who knows absolutely nothing or at best very little about its history often transports the patient to the clinic. Speaking to the trainer or owner is usually more rewarding even if they are not there in person. The history may bring to light information that would seriously affect anesthetic management of the horse. For example, asking if the horse is or has been coughing could reveal an airway infection that should be treated and the surgery might need to be postponed until clinical signs are resolved. Occasionally, you will receive information that the horse had a previous “bad” experience with or reaction to anesthesia. Often times this is just
a perception on the part of the owner or trainer based on an ataxic recovery or prolonged sedative effects of the anesthesia. This reported bad experience should be noted and remembered.

Next should be the physical examination. The cardiovascular and respiratory systems should be scrutinized as this is where the complications during the anesthetic period are most likely to arise. The musculoskeletal system should be considered as well, because if the patient is ataxic or has a lameness while awake, induction and more importantly, recovery can be adversely affected. If there is a musculoskeletal abnormality, a recovery plan to possibly include assistance should be discussed and formulated prior to induction of anesthesia.

A TPR should be completed during the physical exam as well. An abnormal temperature, whether it be hypo- or hyperthermic, should be noted and the cause determined. An elevated HR or RR should be investigated thoroughly as well. Any irregular heart beats or arrhythmias ausculted must be addressed as should abnormal lung sounds detected. Irregularities with the heart should be further worked up with an EKG (to determine the type of arrhythmia) and an x-ray (if an enlarged heart is suspected).

An x-ray of the chest might be warranted if, on auscultation of the chest, loud breath sounds, congestion or muffled sounds are heard.

Abnormalities are almost certain to be discovered during the physical examination of the emergent patient, especially a horse in the throes of colic or a foal with a septic joint or uroabdomen. The most serious of these would be cardiovascular shock, which needs to be treated vigorously and immediately.

Another diagnostic tool at our disposal is laboratory testing, most commonly hematology or blood work. In the healthy horse undergoing a short elective procedure, the cost of the testing may outweigh the benefits. However, bloodwork should be offered to every owner, especially if in-house testing is available. In the emergent patient, bloodwork should be required without question. A complete blood count (CBC), fibrinogen, and serum chemistry are the most commonly run and utilized tests. Four of the most common body systems assessed by evaluating serum chemistry are muscle, kidneys, liver and plasma proteins. Not coincidentally, the same systems are most often affected by the side effects of anesthetic drugs and the anesthetic event. The anesthetist can gain invaluable information from these tests, including underlying physiologic problems that are not yet causing clinical signs, whether or not the patient is ready for surgery, what preparation needs to be made before anesthesia can be induced and even help determine risk factors of the patient. If indeed the horse does show some abnormalities on physical exam or hematology, then the anesthetist has to decide on extent and time table of stabilizing treatment.

Once a plan is in place, in most cases a jugular catheter is placed. The catheter reduces the chance of peri-vascular injection, provides ready access to the vein for fluids or medication administration and saves the anesthetist from having to try and place one in an emergency situation.

Fluid therapy is the most common stabilization method used in the equine patient, whether it be to combat shock, hypovolemia, cardiovascular compromise or hemorrhage. The types of fluids may differ depending on the type of stabilization necessary. In most instances, the bigger the gauge of catheter placed the better.

After stabilization, the patient is more prepared to undergo anesthesia. All ancillary drugs such as antibiotics and anti-inflammatories should be given before induction. Some of the drugs in these classes can cause cardiovascular or respiratory suppression. Drugs such as potassium
penicillin and gentomycin should be given a full 20 minutes prior to sedation and induction. It is recommended that gentocin be followed with fluids.

It was for a long time suggested that equine patients should be fasted for 12 hours prior to anesthesia. It was thought that this would lead to a smaller stomach and coincidentally less pressure on the diaphragm and lungs thus increasing respiratory function. It was supposed to reduce the risk of stomach rupture upon induction. Today many hospitals do not fast horses before elective surgery as there is a concern that doing so may increase the risk of postoperative ileus and thus colic, although there is no hard evidence to corroborate this supposition. However, since the patients are now being allowed to eat up to the time of surgery, it becomes very important for the anesthetist to flush out debris in the horse’s oral cavity, particularly if she intends to intubate the patient. The last thing you want to do is force foreign material down into the airway or lungs.

Sometimes it is necessary to remove the shoe from a foot that is going to be worked on. This cannot be helped. Removal of shoes simply to protect the horse or hospital from damage sometimes alienates the owners. This can be avoided by the use of tape or bandage material covering the shoes. If a shoe is loose, it definitely needs to be removed.

Good pre-anesthetic work-up and patient stabilization prior to induction along with an anesthetic protocol designed to minimize the adverse effects of the drugs on the patient’s existing physiologic problems are imperative to ensure a safe and favorable outcome to any anesthetic event.