

The Value of Safe and Effective Procedural Sedation: Why and How

What is procedural sedation?

- Sedation used to facilitate diagnostic testing (radiographs, ultrasound, etc.) or minor procedures (joint taps, wound management, draining of abscess, placement of urinary catheter, minor ophthalmic procedures, dermatologic testing, biopsy of masses or skin lesions, etc.).

Why use sedation instead of just restraining the patient?

- Most of these procedures have some level of pain or discomfort associated with them.
- Some of these procedures take more than just a few minutes.
- Restraint and the discomfort associated with the restraint and the procedure itself is stressful to the patient and to the staff involved.
- With safe and controlled sedation, the procedure will be able to be completed more efficiently and more effectively.
- The patient will be less painful and less stressed; each encounter that patient has with the veterinary team is an opportunity to build trust and minimize bad experiences for everyone involved.
- Safe and controlled sedation can be safer than just physical restraint, as long as the patient can handle the sedatives.
- Sedation can also take the form of oral anxiolytics, and incorporate the use of topical and infiltrative analgesia in higher risk patients.

Canine and Feline behavior

- Fear, anxiety and aggression need to be considered whenever we are working with our canine and feline patients.
- Both canine and feline patients can become aggressive if they are fearful or if they feel threatened. Pain is unpleasant and can result in aggressive behavior in otherwise non-aggressive patients.
- Pre-existing anxiety regarding being at the veterinary office and being separated from the owner is a real consideration when we are working with our patients. Anxiety and fear will amplify a perceived threat and some individuals will lash out. Best practice involves using Fear Free® techniques, and planning ahead to accommodate anxiety and fear. This includes the use of oral anxiolytics administered prior to the planned procedure so that anxiety is addressed prior to the stressful event.
- Patients with known aggression needed to be handled very carefully and the potential for injury or harm to staff, the owner and to the pet itself should not be underestimated. Means for chemical restraint need to be provided when dealing with aggressive patients. These patients

should arrive at the clinic wearing a basket muzzle if possible and/or an e collar in the case of cats or brachycephalic dogs. Further information will be provided regarding reliable combinations of oral anxiolytic drugs for the client to administer at home.

Multifactorial reasons to manage stress, anxiety and fear, and use procedural sedation instead of just manual restraint

- In one study, it was reported that 106 out of 135 canine patients (78.5%) were fearful on the examination table. ² Hernander (2008) noted that in dogs that had recently visited the veterinary hospital, stress levels were higher than in those that had not recently visited the veterinary hospital. ³ Ensuring that dogs had only positive experiences resulted in them being less fearful than others, suggesting that dogs learn from interacting with empathetic veterinary personnel. ²
- Findings of many studies support the impact that stress has on hospitalized patients. Compliance with routine examinations and veterinary care will be better when the client knows that extra care and attention is given to planning how to accommodate anxious patients.¹
- Reactive dogs generally do worse in a busy practice especially when there are delays. Trying to see them first thing or at the end of the day may reduce anxiety associated with being at the veterinary hospital.¹

Sedation vs premedication prior to general anesthesia

- **Se-da-tion:** the inducing of a relaxed easy state especially by the use of sedatives
 - A continuum
 - Minimal – moderate – deep
 - Usually unaware of surroundings
 - Depression of cerebral cortex
 - Large doses can cause unconsciousness
- Minimal sedation
 - Responds normally to verbal commands
 - Cognitive function and coordination may be impaired
 - Ventilatory and cardiovascular functions usually unaffected
- Moderate sedation
 - Depressed consciousness
 - Respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation
 - Maintains patent airway and spontaneous ventilation adequate
 - Cardiovascular function usually maintained
- Deep sedation
 - Depressed consciousness
 - Not easily aroused; responds purposefully following repeated or painful stimulation
 - May require assistance in maintaining a patent airway
 - Spontaneous ventilation may be inadequate
 - Cardiovascular function is usually maintained

- Goals of Sedation
 - Safely induce a state of calm and muscle relaxation
 - Facilitate diagnostic/therapeutic plan
 - Preserve spontaneous ventilation and normal CV function
 - Provision of analgesia if warranted
- What sedation is NOT
 - Loss of consciousness
 - Lack of movement
- Clinical Relevance
 - Patients can move between different levels of sedation
 - Can't always predict how each patient will respond
 - Must monitor patient to assess depth of sedation
 - Not always possible to predict how individual patient will respond
 - Rescue
- Premedication is the use of drugs prior to general anesthesia in order to relieve anxiety, provide sedation, and to preemptively provide analgesia. Premedication also allows for a reduced induction drug requirement and it can reduce MAC, both of which can result in a more stable induction and anesthetic maintenance phase. Premedication can also impact recovery, when the patient regains consciousness, and the induction drugs have long been eliminated. Certain medications used in the peri anesthetic phase can result in a prolonged recovery. But another way to look at it is that an animal that is relaxed and not stressed during induction should have a smoother recovery compared to one that is agitated, fearful and fighting the induction process. Prolonged recoveries can be minimized by paying attention to the dosing of medications used.
- General anesthesia is a state of being in which the following goals are met:
 - Reversible loss of consciousness
 - Muscle relaxation
 - Analgesia
 - Amnesia
 - Immobility
- Anesthesia and procedures result in physiologic and physical changes that are not benign. Anesthesia causes depression of the CNS, cardiovascular and respiratory systems. Each patient responds differently. Anesthetic crises are unpredictable, rapidly progressive and can result in death. We monitor our patient to make sure that we are achieving our goals while maximizing safety. We monitor continuously and record every 5 minutes.
- Neither sedation nor premedication should result in the patient losing consciousness. Patients must be carefully monitored for an unusual response that results in loss of consciousness. As soon as that happens, the patient does not have the ability to protect their airway and the risk of aspiration pneumonia increases. Furthermore, drugs that are used for their ability to cause loss of consciousness such as propofol, alfaxalone or combinations of ketamine and a benzodiazepine should not be used as sedatives of premedication because that is not what their intended application is. Patient positioning

is also very important and sedated patient or patients that have received sedation or premedication should always be positioned so that the technician monitoring that patient has access to the face and head. Oxygen supplementation should be provided and HR, RR, SPO2, blood pressure and level of consciousness should be monitored.

- Considerations for procedural sedation
 - Patient related considerations
 - Age
 - Species
 - Temperament
 - Health status/concurrent disease
 - Medications
 - Previous response to drugs
 - Procedure related
 - Diagnostic vs surgical
 - Inpatient vs outpatient
 - Length and invasiveness
 - Elective vs emergency
 - Environment
 - Location – association with stress
 - Sensory stimuli
 - Noise – people and animals
 - LOUD NOISES AND PAINFUL STIMULI WILL CAUSE AROUSAL
 - Safety
 - IV access
 - Dedicated staff member to monitor patient and report to DVM regarding vitals and response of patient to procedure
 - Monitoring equipment
 - Reversals and emergency drugs calculated and easily accessible
 - Equipment for obtaining and protecting an airway
 - Provision of supplemental oxygen