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| **Drug** | **Indication/Purpose** | **Contraindications** | **Route of administration** | **Calculations for dose & toxic dose****CALCULATIONS HAVE BEEN DONE FOR ADULT COW WEIGHING 500 kg** | **Concentration** | WDT |
| DRUGS FOR SEDATION, GA, FLUIDS AND CRI* may be indicated/necessary in fractious animals
* Fluids always necessary for GA
* CRI is used for GA, here it is calculated for sheep/goat [everything else done for 500 kg cow]
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| Xylazine (active ingredient - xylazine hydrochloride. Other names - rompun)  | Used as a sedative and for analgesia, and used as pre anesthetic/pre medication before administration of local/general anaesthetic. | * Cattle are very sensitive to xylazine
* Contraindicated in animals who have been given epinephrine
* Contraindicated in animals with active ventricular arrhythmias, hypotension, urinary tract obstructions, shock, and hepatic, cardiac and respiratory dysfunction
* Should not be given to pregnant animals in their 3rd trimester - can cause uterine contraction
* and lead to early delivery
* do not use in patients with oesophageal obstruction, torsion of the stomach - drug appear to worsen effects of the obstruction
 | IM | 0.05 mg/kg CALF 1: [(0.05 mg/kg X 500 kg)/20 mg/ml)] = 1.25 ml reversal Tolazoline doses:2x: [(0.1 X 500)/100] = 0.5 ml4x: [(0.2 X 500)/100] = 1.0 ml  | 2% | MEAT 4 days Milk 24 hours  |
| Ketamine | * Analgesia
 | * always use in conjunction with xylazine, atropine
* can cause increased CSF pressure, should not be used in patients with high intraocular pressure or if there has been head trauma.
* can increase heart rate and blood pressure and so should not be used in patients where an increase in heart rate, blood pressure and myocardial oxygen consumption can be risky (eg. shock or congestive heart failure).
* should be carefully used in animals with preexisting seizure disorders
* should not be used in procedures involving the pharynx, larynx or trachea. Ketamine
 | IM | * 0.05 mg/kg

 [(0.05mg/kg X 500 kg)/100 mg/ml] = 0.25 ml | 10% | Meat - 3 days, milk 48 hours |
| Ketamine Stun | Xylazine + ketamine = addition of small dose of ketamine to provide chemical restraint  |  | IM | Using previous calculations, would mix…1.25 + 0.25 ml = 1.5 ml |  |  |
| CRI- DONE HERE FOR SHEEP/GOAT - continuous analgesia for surgery/patient requiring GAIntra op fluids0.9%Saline (use 1L bag) | IV (CRI in intra op fluids) | Drip Rate in drops per sec - (ml/min x drip factor)/60 = drops/secFluid rate: 5-10 ml.kg.hrMaintenance rate: 1-2 ml/kg/hr |  |  |
|  | Xylazine |  | 0.05 mg/kg |  |  |
|  | Ketamine  |  | 5 mg/kg |  |  |
|  | Lidocaine |  | 1. mg/kg

- note *toxic dose* **[calculated below for nerve blocks]** |  |  |
| Induction dose |  |  |  |  |
|  | Ketamine | Induction. Balanced anaesthesia  | IV | 5 mg/kg **(5mg/kg x 500 kg)/100 mg/ml = 25 ml** | 100 mg/ml |  |
| **NERVE BLOCKS** * young calves – do not exceed toxic dose of lidocaine (10 mg/kg).
* *Dilution of 2% lidocaine in saline can facilitate ease of distribution when restricted amounts are necessary.*
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| Lidocaine | a local anaesthetic used to provide a loss of sensation/analgesia.  | - should not be used with epinephrine IV.- do not use in patients with hypersensitivity to amide class local anesthetics - do not give to patients with AV, SA or intraventricular heart block.- take caution with administration to patients in shock or with respiratory depression, liver disease, congestive heart failure & hypovolemia. |  | Dosage varies per site as listed below.**Toxic dose** @ 10 mg/kg [(10 mg/kg X 500 kg)/20 mg/ml)] = 250 ml1/2 of toxic dose = 125 **ml** | 2% | Meat -1 day, milk - 24 hrs |
|  | Auriculopalpebral nerve block | can be placed to reduce upper eyelid movement before performing a Peterson or retrobulbar block. The auriculopalpebral nerve can be palpated as it crosses the zygomatic arch, roughly 5 cm to 6 cm behind the supraorbital process |  | 5 mL of 2% lidocaine HCl subcutaneously on the dorsal aspect of the zygomatic arch. |  |  |
|  | Peterson nerve block | needle directed horizontally + slightly dorsal until the coronoid process is encountered, needle is “walked off” the rostral aspect of the coronoid process & advanced ventromdially along the caudal aspect of the orbit until the needle encounters the bony plate encasing the foramen orbitorotundum. when needle reaches to the foramen, draw back a few mm to avoid intrameningeal injection.  |  | 10 mL to 15 mL of lidocaine (2%), may add additional 5 mL of lidocaine deposited as the needle is slowly withdrawn.- Mydriasis indicates a successful block. |  |  |
|  | 4-Point Retrobulbar Nerve Block | Into skin on the dorsal, lateral, ventral and medial aspects of the eye, at 12-, 3-, 6-, and 9-o'clock positions, respectively. Needle is directed behind the globe using the bony orbit as a guide |  | 5 mL to 10 mL of lidocaine (2%) is deposited at each site. Mydriasis indicates a successful block. |  |  |
| **DRUGS FOR OTHER TREATMENT - SUBCONJUNCTIVAL/BULBARCONJUNCTICAL INJECTION [Infectious Bovine Keratoconjunctivitis]** |
| OxytetracyclineAtropine  | Tetracycline broad spectrum antimicrobial Indicated for infectious bovine keratoconjunctivitis (pink eye) caused by *Moraxella bovis*Secondary uveitis | Adverse reactions include swelling, restlessness, ataxia, trembling, swelling, resp abnormalities (labored breathing), frothing at the mouth, collapse and possibly death/anaphylaxis (an allergic reaction) or to cardiovascular collapse of unknown cause.Exceeding dose can lead to atropine toxicosis  | SUBCONJUNCTIVAL/BULBARCONJUNCTICAL INJECTION - subcutaneous into conjunctiva | 2-3 ml of 5 or 10% oxytetracycline mixed with 0.5-1 ml soluble dexamethasone | **28 days** for meat and 7 days for milk 6-day milk and 14-day meat **withdrawal time**  | 5 or 10% |
| Dexamethasone | Glucocorticosteroid management of various rheumatic, allergic, dermatologic, and other diseases known to be responsive to anti-inflammatory corticosteroids. | corticosteroids administered orally or parenterally to animals may induce the first stage of parturition when administered during the last trimester of pregnancy, and may precipitate parturition followed by dystocia, fetal death, retained placenta and metritis.**NOT RECOMMENDED especially in the presence of a corneal ulceration or abscess** | Subcutaneous into conjunctiva |  |  | 2 mg/ml |
| **POST OP MEDICATION** |
| Banamine (flunixin meglumine) | An NSAID used for control of inflammation, pain, pyrexia. | * patients with dehydration, on concomitant diuretic therapy, or those with renal, cardiovascular, and/or hepatic dysfunction are at risk for renal toxicity
* Avoid or monitor use with other anti-inflammatories as this can cause GI ulcers
* Do not use in bulls to be used for breeding
* May have effects on estrus cycle and parturition
 | IV | 1.1 mg/kg [(1.1 mg/kg X 500 kg)/50 mg/ml)] = 11 ml | 5% | Meat - 30 days, milk - 72 hours  |
| Pen-Strep (penicillin-streptomycin) | * Long-acting antibiotic
* Treats systemic infections, mixed infections of gram positive and gram negative organisms [ *Arcanobacterium pyogenes*

*Erysipelothrix rhusiopathiae**Klebsiella pneumoniae**Listeria* spp*Mannheimia haemolytica**Pasteurella multocida**Staphylococcus* spp (non-penicillinase producing)*Streptococcus* spp*Salmonella* spp] | * In cases of penicillin hypersensitivity
* Narrow margin of safety
* Withdrawal time - do not slaughter animals under treatment with drug for human consumption
 | IM | 20,000 IU  [20,000 IU X 500 kg)/200,000)] = 50 ml | 200,000 IU | Meat -31 days, milk - 60 hours  |
| Tetanus antitoxin  | - for use whenever a non-immunized animal, or one whose immune status is unknown, suffers a deep penetrating wound that has or may become contaminated - it provides quick, short-term protection.- administered to animals following castration, docking, and other operations as a prophylactic measure especially when performed in an environment where tetanus infection has been present.**For prevention** in horses, cattle, swine, and sheep: 1,500 units IM or SQ. (1500 units = 1 single dose.)**For treatment**:**Horses** and **cattle:** give 10,000 to 25,000 units**Sheep** and **swine:** give 5,000-12,500 units.**Also approved for Goats:** |  | IM | 300IU/ml |  |  |
| Terramycin  | Topical antibotic ointment[oxytetracycline hydrochlorida] |  |  | Applied to surgical site 1-2 times daily for 5-7 days  |  |  |