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| Drugs Used in Lab  | Indications | Time to Effect | Signs Seen/ Side Effects  | Duration of Sedation | Contraindications | Withdrawal Times  | Route of Administration  |
| Bomazine(Xylazine 2%) | Bomazine 2% is indicated for sedation, analgesia and muscle relaxation of large and small domestic and wild animals. | 10 to 15 mins | The respiratory rate is reduced as in natural sleep. The heart rate is decreased and a transient change in the conductivity of the cardiac muscle may occur as evidenced by a partial atrioventricular block. | A sleeplike state, the depth of which is dose-dependent, is usually maintained for 1 to 2 hours, while analgesia lasts from 15 to 30 minutes | No reported contraindications when used as directed | Milk from animals treated with Xylazine must not be consumed within 7 days of treatment. Animals treated with Xylazine must not be slaughtered within 2 days of completion of treatment for meat purpose.  | Bomazine 2% can be administered both by intravenous and intramuscular routes. |
| Penstrep | Pen & Strep Injection is indicated for use in cattle, horses, pigs and sheep for the treatment of infections caused by, or associated with, organisms sensitive to Penicillin and/or StreptomycinThe drug can also be used in post operative prevention of infections. | Slowly over the course of days | **Side Effect:** Prolonged administration of high doses may result in renal, vestibular and/or auditory dysfunctions. Sometimes hypersensitivity reactions may occur. | N/A | Renal insufficiency.Contraindicated in known cases of hypersensitivity to penicillins. | **Cattle, Milk:** 60 hours. Milk for human consumption must not be taken during treatment.**Cattle, Meat:** 23 days. | Intramuscular or Subcutaneously. |
| Banamine(Flunixin) | *Cattle*: BANAMINE Injectable Solution is indicated for the control of pyrexia associated with bovine respiratory disease, endotoxemia and acute bovine mastitis. BANAMINE Injectable Solution is also indicated for the control of inflammation in endotoxemia. | Studies show onset of activity is within 2 hours. Peak response occurs between 12 and 16 hours and duration of activity is 24-36 hours. | Analgesic actions may involve blocking pain impulse generation via a peripheral action by inhibition of the synthesis of prostaglandins and possibly inhibition of the synthesis or actions of other substances, which sensitize pain receptors to mechanical or chemical stimulation. Flunixin may act peripherally in inflamed tissue, probably by inhibiting the enzyme cyclooxygenase to decrease the formation of precursors of prostaglandins, and possibly by inhibiting other local mediators of the inflammatory response.Side Effects in Cattle: Hematochezia, hematuria Note: Hematochezia and hematuria were reported when cattle were treated with three to five times the recommended dose. | N/A | All species: Bleeding disorders (because nonsteroidal anti-inflammatory drugs [NSAIDs] have been associated with inhibition of platelet aggregation, their administration to animals with bleeding problems, including coagulation or platelet function disorders, could increase the risk of adverse effects) Gastrointestinal bleeding or ulceration (many NSAIDs are known, particularly ulceration, therefore, the presence of lesions before treatment may put an animal at risk of exacerbation or perforation) Hypersensitivity to flunixin meglumine (previous development of adverse effects from flunixin may be an indication of increased risk of future sensitivity)  | U.S. and Canada— Flunixin is not labeled for use in dry dairy cows, calves to be processed for veal, or horses to be slaughtered for food. This drug is restricted to use by or on the order of a licensed veterinarian.4 days | Intravenously for cattle. |
| Lidocaine 2% | Lidocaine HCl 2% is a local anesthetic used for infiltration, nerve block and epidural anesthesia in dogs, cats, cattle, calves, horses, sheep and sows. | 10 mins | Dangerous side-effects occur after overdosage, *accidental intravascular injection, or cumulation in connection with heart failure or liver insufficiency*: re-nimation support is usually necessary.The effects on the *central nervous system* are tinnitus, tremor, peripheral paresthesia, visual disturbances, confusion, convulsions, and finally respiratory depressions and coma. Accidentally swallowed lidocaine may also cause convulsions.The cardiovascular effects include atrioventricular conduction defects, bradyarrhythmias and collapse.Hypersensitive reactions are very rare. To reduce pain related to local injections, the solution can be heated up to body temperature. | 1to 4 hours depending on the amount and site given. | Hypersensitivity to amide local anesthetics. | 7 days | Subcutaneously or Intramuscularly |
| Tolazoline | Hypertension, persistent pulmonary (treatment)— Tolazoline is indicated in the treatment of persistent pulmonary hypertension in the newborn (persistent fetal circulation) when systemic arterial oxygenation cannot be maintained by supplemental oxygen and/or mechanical ventilationGiven as the reversal drug for xylazine (given at 4 times the dose of the xylazine given) | seconds | ***Gastrointestinal hemorrhage***—detected by hematest of gastric aspirates; may be fatal hypochloremic alkalosis —secondary to gastric hypersecretion systemic hypotension acute renal failure, especially oliguria thrombocytopenia | N/A | Hypersensitivity to tolazoline; known or suspected coronary artery disease | 48 hours for milk and 8 days for tissue  | Intravenously (IV) |
| Epinephrine | Epinephrine Injection, USP is indicated for intravenous injection in (1) treatment of acute hypersensitivity (anaphylactoid reactions to drugs, animal serums and other allergens), (2) treatment of acute asthmatic attacks to relieve bronchospasm not controlled by inhalation or subcutaneous administration of other solutions of the drug and (3) treatment and prophylaxis of cardiac arrest and attacks of transitory atrioventricular (A-V) heart block with syncopal seizures (Stokes-Adams Syndrome). | seconds | Adverse effects such as cardiac arrhythmias and excessive rise in blood pressure may also occur with therapeutic doses or inadvertent overdosage. Other adverse reactions include cerebral hemorrhage, hemiplegia, subarachnoid hemorrhage, anginal pain in patients with angina pectoris, anxiety, restlessness, throbbing headache, tremor, weakness, dizziness, pallor and respiratory difficulty. | N/A | **Contraindicated** in patients with known hypersensitivity to sympathomimetic amines, in patients with angle closure glaucoma, and patients in shock (nonanaphylactic) | 5 days | Intravenously (IV) |
| Atropine | One indication of Atropine is to temporarily increase heart rate or decrease AV-block until definitive intervention can take place, when [bradycardia](http://www.rxlist.com/script/main/art.asp?articlekey=2515) or AV-block are judged to be hemodynamically significant and thought to be due to excess vagal tone | seconds | Dryness of the mouth, blurred vision, [photophobia](http://www.rxlist.com/script/main/art.asp?articlekey=4882) and [tachycardia](http://www.rxlist.com/script/main/art.asp?articlekey=5698)commonly occur with chronic administration of therapeutic doses. [Anhidrosis](http://www.rxlist.com/script/main/art.asp?articlekey=2261)also may occur and produce heat intolerance or impair temperature regulation in persons living in a hot environment. Constipation and difficulty in[micturition](http://www.rxlist.com/script/main/art.asp?articlekey=4383) may occur in elderly patients. Occasional hypersensitivity reactions have been observed, especially skin rashes which in some instances progressed to exfoliation. | N/A | Atropine generally is contraindicated in patients with [glaucoma](http://www.rxlist.com/script/main/art.asp?articlekey=3596), [pyloric stenosis](http://www.rxlist.com/script/main/art.asp?articlekey=5147) or prostatic [hypertrophy](http://www.rxlist.com/script/main/art.asp?articlekey=25464), except in doses ordinarily used for preanesthetic medication. | **Cattle:** Following antimuscarinic dose, milk 3 days, slaughter 14 days. Following antidote use, milk 6 days, slaughter 28 days | Intravenously (IV) |

\*This table gives a synopsis of information of the drugs used. Please see individual drugs in cmap for more info on each drug.