

Anesthetic Drugs and Dosages Commonly Used in Horses
Veterinary Health Center
Kansas State University

PREMEDICATION/SEDATION (All dosages are for INTRAVENOUS administration)

Drug	Concentration in mg/ml	Recommended Dosage	Comments
Acepromazine	10	0.01-0.03 mg/kg	Administer 30 min prior to induction due to delayed onset.
Xylazine	100	0.2-1.0 mg/kg	May see A-V block, bradycardia, acute hypertension, followed by hypotension
Romifidine	10	0.04-0.1 mg/kg	Intermediate duration between xylazine and detomidine.
Detomidine	10	0.005-0.02 mg/kg	Longer duration than xylazine.

PREMEDICATION/ANALGESIA

Drug	Concentration in mg/ml	Recommended Dosage	Comments
Butorphanol	10	0.01-0.05 mg/kg	Duration 30-40 minutes.
Morphine	25	0.1-0.2 mg/kg	Not to exceed 200 mg in any horse. Duration up to 2.5 hrs.
Methadone	10	0.05-0.1 mg/kg	Similar to morphine. Duration up to 4 hrs.
Hydromorphone	2	0.04 mg/kg	IM or IV

INDUCTION

Drug	Concentration in mg/ml	Recommended Dosage	Comments
Ketamine	100	2.2-2.5 mg/kg	
Midazolam	5	0.05-0.1 mg/kg	
Ketamine	100	2.2-2.5 mg/kg	
Guaifenesin	50	50-100 mg/kg to effect	Give GG to effect and follow with bolus administration of ketamine.
Ketamine	100	2.2-2.5 mg/kg	
Guaifenesin	50	50-100 mg/kg to effect	Recommended only for use in smaller patients due to cost of propofol
Propofol	10	2 mg/kg	

Nasotracheal or Mask Induction in Foals:

Isoflurane or Sevoflurane - 3-4% (ISO) or 5-7% (SEVO) to effect with high O₂ flow of 6-10 L/min

INHALATION ANESTHETIC MAINTENANCE (Vaporizer Settings)

Inhalation Agent	Induction Dose	Maintenance Dose	Comments
Isoflurane	3%	1.0-3.0%	Rapid recovery, may need sedation.
Sevoflurane	5-7%	3.0-4.0%	Very rapid recovery. Sedation in recovery stall. Very expensive agent.

INTRAVENOUS ANESTHETIC MAINTENANCE

G-K-X ("Triple Drip")	Concentration in mixture	Maintenance Dose	Comments
Guaifenesin	50 mg/ml	1-2 ml/kg/hr intravenous infusion. Infuse to effect after induction with xylazine/ketamine.	Add 2 grams of ketamine and 500 mg xylazine to a liter bag of 5% guaifenesin. Not recommended for anesthesia time > 1 hr.
Ketamine	2 mg/ml		
Xylazine	0.5 mg/ml		

BLOOD PRESSURE SUPPORT

Agent	Concentration	Dose Range	Comments
Dobutamine	12.5 mg/ml	1-5 µg/kg/min	CRI administration
Ephedrine	50 mg/ml	0.025-0.05 mg/kg	IV bolus. Can be repeated.

Anesthetic Drugs and Dosages Commonly Used in Small Animals
Veterinary Health Center
Kansas State University

PREMEDICATION

Drug	Concentration in mg/ml	Recommended Dosage
Acepromazine	1	0.02-0.08 mg/kg
Midazolam	5	0.1-1.0 mg/kg
Dexmedetomidine	0.5 or 0.1	0.003-0.01 mg/kg
Methadone	10	0.25-0.5 mg/kg
Fentanyl	0.05	0.005-0.01 mg/kg
Butorphanol	10	0.2-0.4 mg/kg
Buprenorphine	0.3	0.01-0.03 mg/kg (IM or IV only)
Hydromorphone	2	0.05-0.15 mg/kg
Ketamine	100	3-5 mg/kg (IM)

INDUCTION (All dosages are for INTRAVENOUS administration and should be titrated to effect)

Drug	Concentration in mg/ml	Recommended Dosage
Ketamine	100	5-10 mg/kg
Propofol	10	3-8 mg/kg
Alfaxalone	10	1-4 mg/kg
Ketamine + Propofol	---	2-3 mg/kg each, combined & titrated to effect

ANALGESIC/ANESTHETIC CONSTANT RATE INFUSIONS

Drug	Concentration in mg/ml	Loading Dose	Recommended Rate
Fentanyl	0.05	3-10 µcg/kg	5-10 µcg/kg/hr
Morphine	25	0.25 mg/kg	100-200 µcg/kg/hr
Ketamine	100	0.5 mg/kg	600 µcg/kg/hr
Lidocaine	20	2 mg/kg	25-50 µcg/kg/min
Propofol	10	3-5 mg/kg	250-400 µcg/kg/min
Alfaxalone	10	1-3 mg/kg	70-120 µcg/kg/min

ANESTHETIC MAINTENANCE (Vaporizer Settings)

Inhalation Agent	Induction Dose	Maintenance Dose
Isoflurane	1.5-3%	1-2.5%
Sevoflurane	4-7%	2.5-4.0%

NEUROMUSCULAR BLOCKADE

Drug	Concentration in mg/ml	Loading Dose	CRI Rate
Atracurium	10	0.1-0.2 mg/kg	3-10 µcg/kg/min

REVERSAL AGENTS

Drug	Concentration in mg/ml	Recommended Dose
Naloxone (opioid reversal)	0.4	0.02-0.04 mg/kg
Atipamezole (alpha-2 agonist reversal)	5	0.03-0.1 mg/kg
Neostigmine (NMB reversal)	1	0.02 mg/kg
Flumazenil (benzodiazepine reversal)	0.1	0.02 mg/kg

ANTICHOLINERGICS

Drug	Concentration in mg/ml	Recommended Dose
Atropine	0.54	0.02-0.04 mg/kg
Glycopyrrolate	0.2	0.005-0.02 mg/kg

BLOOD PRESSURE SUPPORT

Drug	Concentration in mg/ml	Recommended Rate	Comments
Ephedrine	50	0.05-0.2 mg/kg	IV Bolus
Ephedrine	50	5-10 µcg/kg/min	CRI
Dobutamine	12.5	1-10 µcg/kg/min	CRI
Norepinephrine	1	0.1-0.5 µcg/kg/min	CRI

EPIDURAL ANALGESIA

Drug	Concentration in mg/ml	Recommended Dose
Morphine (preservative free)	1	0.05-0.15 mg/kg
Ketamine	100	0.5-2 mg/kg
Ropivacaine	5	0.3-0.5 mg/kg
Lidocaine	20	2-4 mg/kg

ULTRASOUND GUIDED NERVE BLOCKS

Drug	Concentration in mg/ml	Recommended Dose
Ropivacaine	5	1.5 mg/kg (not to exceed 50 mg total dose)
Lidocaine	20	6 mg/kg (not to exceed 200 mg total dose)