

Calculation - uses a sheep of 45 kg

Drug	Concentration	Dose Rate	CALCULATIONS	Withdrawal	Indication for use
1. Penstrep (antibiotic)	200,000 IU/ml	40,000 IU/kg	$V = 50\text{kg} \times 20,000 \text{ IU/kg} / 200,000 \text{ IU/ml} = 4.5 \text{ mls IM}$	30 DAYS	Antibiotics 5mls q3d x 2
2. Sedation Xylazine Ketamine	20 mg/ml 100mg/kg	0.05mg/kg g 0.5mg/kg	$(X)V = (0.05 \times 45) / 20 = 0.11 \text{ mls}$ $(K)V = (0.5 \times 45) / 100 = 0.22 \text{ mls}$	14 days meat 48 hrs milk	1/10 the equine dose +/- 45 min of anaesthesia
6. Xylazine (Anaesthetic) CRI	20 mg/ml	0.05 mg/kg/hr	$M = \frac{DV}{IR} \quad \& \quad V = \frac{M}{C}$ $\frac{0.05 \times 1000}{5}$ $= 10\text{mg} \dots 10/20 = \mathbf{0.5 \text{ mls}}$	14 days meat 48 hrs milk	Continuous analgesia for the 2 hrs of surgery
5. Ketamine Induction	100mg/ml	5mg/kg	$V = (5 \times 45) / 100 = 2.25 \text{ mls IV}$	3 days meat 24 hrs milk	<i>Balanced anaesthesia</i>
5. Ketamine CRI	100mg/ml	5mg/kg/hr	$M = \frac{DV}{IR} \quad \& \quad V = \frac{M}{C}$ $\frac{5 \times 1000}{5}$ $= 1000\text{mg} \dots 1000/100 = \mathbf{10\text{mls}}$	3 days meat 24 hrs milk	Continuous analgesia for the 2 hrs of surgery
3. Flunixin Tetanus antitoxin	50mg/ml 300IU/ml	2.2mg/kg	$V = (2.2 \times 45) / 50 = 2.0 \text{ mls IV}$ - Slow Iv admin - 1 ml/second 600IU (2mls)	Meat 4 days	preemptive analgesia & post-op for three days.
5. Lidocaine (Anaesthetic - Induction)	20mg/ml	1.0 mg/kg	$V = (1.0 \times 45) / 20 = 2.25 \text{ mls IV}$	1 day meat 24 hrs milk	Toxic dose 10 mg/kg
6. Lidocaine CRI	20mg/ml	1.0 mg/kg	$M = \frac{DV}{IR} \quad \& \quad V = \frac{M}{C}$ $\frac{1 \times 1000}{5}$ $= 200\text{mg} \dots 200/20 = \mathbf{10\text{mls}}$	1 day meat 24 hrs milk	Toxic dose 10 mg/kg =25mls
4. EPIDURAL Bupiv/Ket	(B) 5mg/ml (K) 100mg/ml	(B) 0.25mg/kg (K) 1.25mg/kg	$(B)V = (0.25 \times 45) / 5 = 2.25 \text{ ml}$ $(K)V = (1.25 \times 45) / 100 = 0.56 \text{ ml}$	Bupiv- none	Toxic dose 2 mg/kg =20mls
7. Intra-op Fluids 0.9% Saline (use 1L bag)	Calculated of Drip Rate in drops per sec - (ml/min x drip factor)/60 x60 (3600secs) = drops/sec $\frac{45 \times 5 \times 20}{3600} = 1.25 = 2 \text{ drops/2sec}$				
Tolazoline (xylazine reversal)	100mg/ml	4 x xylazine dose i.e. 0.1 mg/kg	$V = (0.1 \times 45) / 100 = 0.045 \text{ mls}$	None for food animals	Xylazine reversal
Atropine	0.54 mg/ml	0.04 mg/kg	$V = (0.04 \text{ mg/kg})(45\text{kg}) / 0.54 \text{ mg/ml}$ $V = 3.6 \text{ ml} (= 2\text{mg}/50\text{kg})$	14 days meat 3 days milk	Use if bradycardia < 30 bpm
Epinephrine	1mg/ml (1:1000)	0.02 mg/kg	$V = (0.02 \text{ mg/kg})(45 \text{ kg}) / 1 \text{ mg/ml}$ $V = 0.9 (=1 \text{ ml})$	No WDT	Anaphylactic reactions

Ketamine + Xylazine for breakthrough = half sedation dose (0.13ml xylazine + ketamine 0.25ml) PRN

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Drug (mg) = [Infusion rate of the drug (mg/kg/hour) ÷ Fluid infusion rate (ml/kg/hour)] x diluent volume (ml)
 $M = \frac{DV}{IR} \quad \& \quad V = \frac{M}{C}$

Rate of Fluid delivery = 5 ml/kg/hr
 Drop factor = 20 drops/ml