# CONSTANT RATE INFUSIONS – RULES CATTLE, SHEEP & GOAT

- Need to know two doses:
  - Loading – eg. Xylaline 0.05 mg/kg IM, Ketamine 5 mg/kg IV & Lidocaine 1mg/kg
  - CRI – eg. Xylaline 0.05mg/kg/hr & Ketamine 5 mg/kg/hr
    - Lidocaine 1mg/kg/hr
  - Fluid rate – for surgery 5-10 ml/kg/hr
- Choices:
  - Use formula –
  - Made easy rule:
    - **60mg of any drug in 1L**
    - **X Flow Rate in ml/kg/hr delivers X mcg/kg/min of drug**

**Drug (mg) = [Infusion rate of the drug (mg/kg/hour) ÷Fluid infusion rate (ml/kg/hour)] x diluent volume (ml)**

Formula for CRI

$$M = \frac{(D)(W)(V)}{(R)(16.67)}$$

M = number of mg of drug to add to delivery fluid
D = dosage of drug in mcg/kg/min
W = patient body weight in kg
V = volume in ml of delivery fluid
R = rate of delivery in ml/hr
16.67 = conversion factor

**CRI Drug (mg) = [Infusion rate of the drug (mg/kg/hour) ÷Fluid infusion rate (ml/kg/hour)] x diluent volume (ml)**

**MAINTENANCE RATE = 1-2 ml/kg/hr SURGICAL RATE = 5-10 ml/kg/hr**

| DRUG | CONCENTRATION | DOSE Sheep/goat | CALCULATION (infusion rate 5ml/kg/hr) |
|---|---|---|---|
| Xylazine | 2omg/ml | 0.05mg/kg/hr | (0.05/5) x 1000 = 10mg = 0.5mls |
| Ketamine | 100mg/ml | 5mg/kg/hr | (5/5) x 1000 = 1000 = 10 mls |
| Lidocaine | 20mg/ml | 1mg /kg/hr | (1/5) x 1000 = 200 = 10mls |

Calculated of Drip Rate in drops per sec - (ml/min x drip factor)/60 = drops/sec

50kg Sheep drop/sec = (50kg x 5ml/kg/hr x 20 drops/ml) / (60min/hr x 60sec/min) = 1.4d/sec

Volume of **loading dose** of Xylazine was found to be 0.02ml

Therefore, a 10 ml stock solution of 1mg/ml (0.1%) was prepared.

$V_1C_1=V_2C_2$

$V_1 * 20 = 10 * 1$

$V_1= 0.5$

9.5ml saline was added to 0.5ml xylazine to create a 0.1% solution of Xylazine

New Volume using 0.1% solution $=\frac{0.05*8.4}{1}$= 0.42 ml

**Determining drops per second for an 8.4kg sheep:**

$$\frac{8.4 * 5 * 20}{3600} = 0.23\ drops\ per\ second\ (about\ 1\ drop\ every\ 4\ seconds - difficult\ to\ control)$$

**Pediatric drip line changed drip rate in calculation to 60 drops/ml**

**New drip rate:**

$$\frac{8.4 * 5 * 60}{3600} = 0.7\ drops\ per\ second = 2\ drops\ every\ 3\ seconds$$