

# Quick Reference to Small Animal Anesthesia

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## Anesthesia Machine

### Breathing System Selection

- >5 kg → rebreathing system (RS)
- <5 kg → non-rebreathing system (NRS)

### Fresh Gas Flow (FGF)

- **High flow** (induction & recovery on RS):
  - <20 kg → 1 L/min
  - >20 kg → 2 L/min
- **Low flow** (maintenance on RS):
  - 0.5 L/min
- **Very high flow** (on NRS):
  - 1.5 L/min

### Isoflurane Vaporizer Settings

- Induction (healthy patients): 1.5-2%
- Induction (compromised pts): 0.5-1%
- Maintenance: 0.8-1.5% (titrated)

### Reservoir Bag Size

- <30 kg → 2 L
- >30 kg → 3 L

Acceptable Leak <0.2 L/kg/min

## Monitoring

### Minimum Arterial Blood Pressure:

- **MAP ≥ 60 mmHg**
- **SAP ≥ 80 mmHg**

Hypertension: SAP >160 mmHg

Normal **Pulse Rate** (PR, pulses/min):

- Cat: 100-180
- Small dog: 80-180
- Medium dog: 60-160
- Large dog: 40-140

Normal Oxygen Saturation (pulse oximetry)

- Room air: SpO<sub>2</sub> >95%
- 100% O<sub>2</sub>: SpO<sub>2</sub> >98%
- **SpO<sub>2</sub> <90% → supplement O<sub>2</sub>**

Normal **ETCO<sub>2</sub>** (ventilation)

- Dog: 35-45 mmHg
- Cat: 30-35 mmHg

Normal **Body Temperature**: 38–39 °C

## Mechanical ventilation

Respiratory Rate (RR): 10-15 breaths/min

Tidal Volume (VT): 10-15 mL/kg

Peak Inspiratory Pressure (PIP):

- <10 kg → PIP <10 cmH<sub>2</sub>O
- >10 kg → PIP <20 cmH<sub>2</sub>O

PEEP: 0-5 cmH<sub>2</sub>O (optional)

Inspiratory Time (Ti): 1-2 s

ET tube cuff leak test: 20 cmH<sub>2</sub>O

## Fluid Therapy

Fluid **Choice** (maintenance)

- **Balanced crystalloids (e.g. LRS)**
- 0.9% NaCl → not ideal
- Glucose supplementation → only if indicated (based on measurement)

**Maintenance Fluid Rates**

- First hour
  - 10 mL/kg/h
- After first hour
  - **Dog 5 mL/kg/h**
  - **Cat 3 mL/kg/h**

**Fluid Bolus (crystalloids)**

- Dog 5 mL/kg over 5 min
- Cat 3 mL/kg over 5 min

**Blood loss** → Immediate Replacement

- 3x volume with crystalloids, or
- 1x volume with colloids

**Management of Hypotension**

(mild cases, healthy anesthetized patients)

1. If heart rate is low → atropine IV
2. Reduce anesthetic depth
3. Give fluid bolus (max. 2x)
4. Inotrope/vasopressor (e.g. dopamine CRI)
5. Maintain normal physiological parameters (e.g. temp., ETCO<sub>2</sub>, etc.)

Severe shock or significant blood loss requires a different approach!

## Maximum Doses of Local Anesthetics

- **Lidocaine**
  - Dog → <7 mg/kg
  - Cat → <3 mg/kg (never IV!)
- **Bupivacaine (never IV!)**
  - Dog → <2 mg/kg
  - Cat → <1.5 mg/kg

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