

1. Preanaesthetics & Premedication

Aims: Sedation, restraint, analgesia, smoother induction/recovery, ↓ secretions, ↓ MAC.

Anticholinergics: Atropine (0.02–0.05 mg/kg), Glycopyrrolate (0.01–0.02 mg/kg) **Sedatives:** Acepromazine, Xylazine, Detomidine, Medetomidine, Diazepam, Midazolam **Opioids:** Morphine, Butorphanol, Fentanyl; reversed by Naloxone

2. Alpha-2 Agonists

Xylazine: Sedation, muscle relaxant; caution in ruminants (10x sensitivity) **Detomidine:** Used in horses, potent sedation **Medetomidine:** Dog: 10–20 µg/kg IM; Cat: 20–40 µg/kg IM; reversed by Atipamezole **Romifidine:** Used in horses, less ataxia than xylazine

3. Benzodiazepines

Diazepam: 0.1–0.5 mg/kg IV; anticonvulsant, appetite stimulant **Midazolam:** 0.07–0.22 mg/kg; short acting **Climazolam:** Used in large animals; Dog: 1–1.5 mg/kg IV

4. Opioid Analgesics

Morphine, Butorphanol, Fentanyl used for analgesia. **Reversal agent:** Naloxone (0.01 mg/kg IV)

5. Injectable Anaesthetics

Ketamine: 10–15 mg/kg IM; dissociative **Thiopental:** 6–8 mg/kg IV; ultra-short acting **Propofol:** 4–6 mg/kg IV; rapid recovery, smooth **Alfaxalone:** 2–3 mg/kg IV; minimal CV depression

6. Inhalant Anaesthetics

Halothane: MAC 0.87%, sensitizes heart to catecholamines **Isoflurane:** MAC 1.3%, safe and stable **Sevoflurane:** MAC 2.4%, rapid induction/recovery **Nitrous oxide:** Weak, used with others

7. Local & Regional Anaesthesia

Agents: Lignocaine (2%), Bupivacaine (0.5%), Mepivacaine **Techniques:** Field block, Epidural (sacrococcygeal in cattle), Nerve blocks, Infiltration **Special:** Internal pudendal block for bull, paravertebral for flank

8. Monitoring & Complications

Parameters: HR, RR, BP, Temp, Reflexes (palpebral, corneal) **Complications:** Hypoventilation, Bradycardia, Hypothermia, Cyanosis, Aspiration **Emergencies:** CPR, adrenaline (0.01 mg/kg), diazepam (0.5 mg/kg)

9. Recovery

Good Recovery Practices: Warmth, monitoring, padded area, oxygen **Factors affecting:** Depth, duration, drugs, metabolic rate, species

10. Species-Specific Protocols

Dogs: Atropine + Acepromazine + Ketamine/Thiopental **Cats:** Medetomidine + Ketamine **Horses:** Medetomidine + Butorphanol → Ketamine/Diazepam **Cattle:** Sensitive to xylazine, use local blocks **Goats:** Epidural risk of convulsion **Swine:** Risk of malignant hyperthermia

11. Antidotes & Reversal Agents

Alpha-2 Agonists: Yohimbine, Atipamezole

Opioids: Naloxone (0.01 mg/kg IV)

Benzodiazepines: Flumazenil (0.01–0.02 mg/kg IV)

Anticholinergics: Physostigmine

Organophosphates: Atropine + 2-PAM

NM Blockers: Neostigmine + Atropine

Others: Ethanol for ethylene glycol, Methylene blue for nitrate poisoning, N-acetylcysteine for paracetamol