

Ten Things Forgotten Since Tech School

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Anesthesia – ASA Classification

Lessons Remembered

Every anesthetic patient should be assigned an ASA status to evaluate anesthetic risk.

Key Ideas

- Assign an ASA level to every patient.
- ASA Status (American Society of Anesthesiologists Classification): System used to classify anesthetic risk based on patient health status.

Examples

- ASA I: Healthy patient
- ASA II: Mild systemic disease
- ASA III: Severe systemic disease
- ASA IV: Severe disease threatening life
- ASA V: Moribund patient unlikely to survive

Anesthesia – Capnography

Lessons Remembered

Capnography readings change inversely with ventilation effectiveness.

Key Ideas

- Capnography has a reverse relationship.
- Capnography: Monitoring of CO₂ concentration in exhaled breath.

Examples

- Hypoventilation -> High ETCO₂
- Hyperventilation -> Low ETCO₂

Animal Care and Nursing – Hydration

Lessons Remembered

Adequate hydration is essential unless the patient is specifically NPO.

Key Ideas

- Patients should have water unless NPO.
- NPO (Nil Per Os): Nothing by mouth.
- IVF: Intravenous fluids.
- Canine water needs: 1 fluid ounce per pound per day.
- Feline water needs: 5-10 ounces per day.

Examples

- 60 lb dog -> 60 oz / 1775 mL of water per day.

Animal Care and Nursing – Resting Energy Requirement

Lessons Remembered

RER estimates the energy needed for basic body function at rest.

Key Ideas

- Resting Energy Requirement (RER): Energy required for metabolic activity while resting.
- Formula for patients 2-45 kg: $RER = (30 \times \text{body weight in kg}) + 70$.
- Kilocalorie (kcal): Unit of energy used in nutrition.

Examples

- 20 kg dog -> 670 kcal/day.

Dentistry – Charting

Lessons Remembered

Each tooth should be evaluated individually during oral exams.

Key Ideas

- Technicians should perform oral exam and charting.
- Each tooth is treated as its own patient.
- Dental charting: Recording the health of each individual tooth.

Examples

- Dogs: 42 teeth.
- Cats: 30 teeth.

Dentistry – Dental Radiography

Lessons Remembered

Correct sensor placement is necessary to obtain diagnostic dental radiographs.

Key Ideas

- Crown placed on the outer edge of the sensor.
- Majority of the sensor should be inside the oral cavity.
- Crown is not required to obtain diagnostic root images.
- Sensor: Digital plate that captures dental radiographs.

Diagnostic Imaging – Thoracic Radiographs

Lessons Remembered

Different thoracic radiograph views are used depending on the suspected condition.

Key Ideas

- Dorsal recumbency: Patient positioned on their back.
- Crossbeam: Center of the X-ray beam.
- Thoracic measurements taken over the diaphragm.
- Expose during peak inspiration.

Examples

- V/D View: Used when fluid is suspected; fluid moves toward the patient's back; heart appears displaced.
- D/V View: Best for visualizing the heart in normal position; crossbeam placed behind the scapula.

Diagnostic Imaging – Lateral Thoracic Radiographs

Lessons Remembered

Lateral thoracic views improve lung evaluation and help detect metastasis.

Key Ideas

- Measure the widest part of the thorax.
- Expose during peak inspiration.
- Foam wedge under sternum reduces rib superimposition.
- Metastasis: Spread of cancer to distant tissues.
- Superimposition: Overlapping anatomical structures on radiographs.

Examples

- Left lateral view used when metastasis is suspected.

Diagnostic Imaging – Abdominal Radiographs

Lessons Remembered

Abdominal radiographs should be taken during expiration for better organ visualization.

Key Ideas

- Measure the widest part of the abdomen.
- Expose during peak expiration.
- Crossbeam positioned behind the last rib.
- Include region from xiphoid process to base of tail.
- Xiphoid process: Cartilage extension at the caudal end of the sternum.

Diagnostic Imaging – Sonography Basics

Lessons Remembered

Ultrasound images are interpreted differently than radiographs.

Key Ideas

- Ultrasound uses sound waves.
- Images consist of black, gray, and white.
- Sonography: Diagnostic imaging using high-frequency sound waves.

Diagnostic Imaging – Echogenicity

Lessons Remembered

Ultrasound interpretation depends on echogenicity.

Key Ideas

- Echogenicity: Ability of tissues to reflect ultrasound waves.
- Anechoic: No sound waves returned to the probe; appears black.

Examples

- Fluid appears anechoic on ultrasound.

Diagnostic Imaging – Ultrasound Tissue Terms

Lessons Remembered

Tissues are described by brightness relative to surrounding structures.

Key Ideas

- Hypoechoic: Darker tissue with lower echo return.
- Hyperechoic: Bright tissue with stronger echo return.
- Isoechoic: Same brightness as surrounding tissue.

Emergency and Critical Care – Emergency Definition

Lessons Remembered

Emergency care involves rapid assessment and stabilization of urgent medical problems.

Key Ideas

- Emergency care: Immediate assessment and stabilization of urgent conditions.
- Triage begins over the phone.
- Determine whether patient goes to exam room or treatment area.
- Triage: Prioritizing patients based on severity.

Emergency and Critical Care – Preparedness

Lessons Remembered

Veterinary staff should always be prepared to treat emergencies.

Key Ideas

- Maintain a stocked crash cart.
- Staff should be CPR trained.
- Establish venous access.
- Use the largest appropriate IV catheter.
- Spare cephalic veins when possible.
- Obtain blood samples before treatment.
- IVC: Intravenous catheter placed in a vein.
- Crash cart: Emergency equipment cart used for resuscitation.

Emergency and Critical Care – Monitoring

Lessons Remembered

Fluid therapy should match urine output once the patient is hydrated.

Key Ideas

- Monitor ins and outs.
- Normal urine output: 1-2 mL/kg/hour.

- IVF rate should roughly equal urine output.
- Pulse oximeter: Measures oxygen saturation.
- Sensors must contact bare tissue.

Examples

- Pulse oximeters may read falsely low.

Laboratory Procedures – Blood Collection Limits

Lessons Remembered

Blood collection must stay within safe limits to avoid patient harm.

Key Ideas

- Maximum safe collection: 1% of total blood volume per 24 hours.
- Hemostasis: Process that stops bleeding.

Examples

- Estimated blood volume - Dog: 80 mL/kg; Cat: 55 mL/kg; Ferret: 75 mL/kg; Rabbit: 56 mL/kg.
- Example calculation: 25 kg dog -> 20 mL safe blood collection.

Laboratory Procedures – Tube Filling

Lessons Remembered

Improperly filled blood tubes can cause inaccurate laboratory results.

Key Ideas

- Underfilling leads to excess anticoagulant.
- May cause decreased RBC count.
- Decreased hematocrit.
- Altered cell morphology.
- Incorrect RBC indices.
- Prolonged clotting times.
- HCT: Hematocrit percentage of red blood cells.
- MCV / MCH / MCHC: Red blood cell indices.

Laboratory Procedures – Tube Order

Lessons Remembered

Following the correct tube order prevents contamination between additives.

Key Ideas

- EDTA contamination can cause inaccurate results.

Examples

- Correct order: 1) Blood culture tubes 2) Non-additive tubes 3) Serum tubes (red top).
- EDTA contamination results: Falsely decreased calcium; falsely increased potassium.

Laboratory Procedures – Tube Types

Lessons Remembered

Different blood tubes contain additives used for specific laboratory tests.

Key Ideas

- Anticoagulant: Substance preventing blood clotting.

Examples

- Blue top: Sodium citrate (coagulation tests).
- Green top: Heparin.
- Lavender top: EDTA.
- Gray top: Oxalate / fluoride.

Laboratory Procedures – Urinalysis

Lessons Remembered

Cystocentesis provides the most sterile urine sample.

Key Ideas

- Cystocentesis: Needle aspiration of urine directly from the bladder.

Examples

- Collection methods: Cystocentesis (preferred); Free catch; Midstream collection reduces contamination.

Laboratory Procedures – Urine Storage

Lessons Remembered

Improper urine storage can alter urinalysis results.

Key Ideas

- Refrigeration can alter pH.
- May create crystals.
- Can interfere with reagent strips.
- Urease: Enzyme converting urea into ammonia and CO₂.

Examples

- Urine must be brought to room temperature before testing.

Pain Management – Pain Classification

Lessons Remembered

Pain has both physical and emotional components.

Key Ideas

- Affective component: Emotional aspect of pain perception.

Examples

- Acute pain: Associated with tissue damage; rapid behavioral change.
- Chronic pain: Persists beyond normal healing time.

Pain Management – Pain Recognition

Lessons Remembered

Behavioral changes are key indicators of pain in animals.

Key Ideas

- Signs include posture change, vocalization, aggression, decreased appetite, lameness, reluctance to move, and altered interaction with people.

Pain Management – Pain vs Dysphoria

Lessons Remembered

Dysphoria can resemble pain but is usually related to anesthesia recovery.

Key Ideas

- Dysphoria: Agitated or distressed behavioral state.

Examples

- Often occurs 20-30 minutes post-operation.
- May be associated with poor inhalant anesthesia recovery, ketamine administration, or high opioid doses.

Pain Management – Pain Treatment

Lessons Remembered

Pain management often requires multiple drug classes.

Key Ideas

- Analgesic: Medication that relieves pain.

Examples

- Opioids: Used for moderate to severe pain; act on opioid receptors.
- NSAIDs: Provide anti-inflammatory and analgesic effects; used for mild to moderate pain.

Pain Management – Additional Analgesics

Lessons Remembered

Additional drug classes can enhance analgesia and reduce stress responses.

Key Ideas

- Adjuvant analgesic: Drug used to enhance pain control.

Examples

- Alpha-2 adrenergic agonists: Sedation, analgesia, muscle relaxation.
- Local anesthetics: Block sodium channels and prevent nerve impulse conduction.

Pharmacy and Pharmacology – Medical Math

Lessons Remembered

Accurate conversions are critical for safe medication dosing.

Key Ideas

- Move decimal right to convert to smaller units.
- Move decimal left to convert to larger units.

Examples

- 1 g = 1000 mg.
- 1000 mg = 1 g.
- Temperature conversion: $F = C \times 9 / 5 + 32$; $C = (F - 32) \times 5 / 9$.

Pharmacy and Pharmacology – Therapeutic Index & First-Pass Effect

Lessons Remembered

Drug safety and effectiveness depend on therapeutic index and metabolism.

Key Ideas

- Therapeutic Index (TI): Ratio between effective dose and toxic dose.
- Larger TI = safer drug.
- First-pass effect: Drug metabolism in the liver before entering systemic circulation.

Examples

- Buprenorphine given PO loses more than 90% of effectiveness.

Pharmacy and Pharmacology – 5 Rights of Medication

Lessons Remembered

Medication safety requires standardized administration checks.

Key Ideas

- Five rights of medication administration.

Examples

- Right patient.
- Right medication.
- Right route.
- Right dose.
- Right time.

Surgical Nursing – Chlorhexidine

Lessons Remembered

Chlorhexidine is a commonly used surgical antiseptic.

Key Ideas

- Antiseptic: Chemical that kills microorganisms on living tissue.
- Effective against bacteria, viruses, and fungi.
- Requires 2-minute contact time.
- Inactivated by organic debris.
- Avoid around eyes, ruptured eardrums, or exposed meninges.

Surgical Nursing – Povidone-Iodine and Alcohol

Lessons Remembered

Different antiseptics have different uses and safety considerations.

Key Ideas

- Povidone-iodine: Broad-spectrum bactericide with residual activity.
- Isopropyl alcohol: Rapid bactericidal agent but flammable.

Examples

- Povidone-iodine: Residual activity up to 6 hours; requires 2-minute contact time; diluted for ophthalmic use.
- Isopropyl alcohol (60-90%): Rapid bacterial kill; ineffective against spores; highly flammable.



Notes



My Questions



Ideas to Take Back