NEOMED MMScA Program
Clinical Keywords
General Rotation – Equipment

AIRWAY EQUIPMENT

- **Oral and nasal airways:**
    - Indications
    - Contraindications and potential complications
    - Supplemental oxygen devices:
    - Nasal cannulas
    - High flow nasal cannula
    - Simple face mask
    - Non-rebreather mask
    - Venturi mask
- **Ventilation devices:**
    - LMAs
    - ETTs (murphy eye, bevel, low pressure vs. high pressure cuffs, cuff pressure management, RAE tubes, reinforced tubes, laser tubes, nasal and oral tubes)
    - Laryngoscopes and blades
    - Tube exchanger devices

RESPIRATORY MONITORING

- **Capnography (colorimetric, continuous waveform)**
- **Pulse oximetry**
- **Co-oximetry**

ANESTHESIA MACHINE

- **Components:**
    - Wall supply and gas cylinder supply of gases
    - Pin index safety system
    - Diameter index safety system
    - High pressure and low pressure pathways
    - Flowmeters and vaporizers (safety features, proportioning devices, vapor pressure, gas concentrations, calculation of FiO2)
    - Spirometer
    - Spectrometer
    - Active and passive scavenging
    - Suction
    - Pressure fail-safe
    - Machine alarms and management
- **Ventilator**
    - Modes of ventilation:
        - Assist-control
        - Controlled ventilation
        - Pressure limited

        - Volume limited
        - Intermittent mandatory ventilation (IMV)
        - Synchronized intermittent mandatory ventilation (SIMV)
        - Pressure support ventilation (PSV)
        - Autoflow ventilation
        - High frequency and jet ventilation
    - Ventilator settings:
        - Respiratory rate
        - Tidal volume
        - I:E ratio
        - Peak inspiratory pressure
        - PEEP
        - CPAP
        - Bilevel positive airway pressure (BiPAP)
        - Fresh gas coupling

ANESTHESIA CIRCUITS

- **Systems:**
    - Circle systems (closed, semi-closed, adult, pediatric),
    - Non-circle systems (insufflation, open, semi-open/Mapleson)
    - Indications for use, advantages and limitations for each type of circuit
- **Components:**
    - Connectors and adaptors (elbow, Y-piece)
    - Masks
    - Endotracheal tubes
    - Reservoir bags
    - Unidirectional valves
    - Inspiratory and expiratory tubing
    - Coaxial circuits
    - Airway pressure relief valve
    - Carbon dioxide absorbers (types of absorbent, canisters, efficiency, compound A, carbon monoxide poisoning)
- **Circuit performance:**
    - Resistance
    - Laminar and turbulent flow
    - Dead space (anatomic, mechanical, and physiologic)
    - Rebreathing
    - Compliance
    - Leaks
    - Gas mixtures
    - Humidity
    - Heat

PHYSICS AND MATH

- **Fresh gas flow calculations:**
  - Fresh gas coupling
  - Inspiratory and expiratory flow rates through anesthesia circuits
  - E cylinder volume calculations
- **Properties of anesthetic gases and fresh gas flow gaseS**
- **Flow, resistance, diffusion, gas laws and partial pressures**
- **Fire and explosion hazards, prevention and management of airway fires, radiation safety, lasers and laser safety**
- **Electricity, electronics, and electrical safety**
  - Ohm's law, direct and alternating current, hot/neutral/ground wires, leakage current, short circuits, microshock, macroshock, line isolation monitor
  - Unipolar and bipolar cautery, "grounding pad," and harmonic scalpel