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