Objectives

- List required equipment and monitors
- Understand the benefits of capnographic monitoring
- Recognize normal and pathological capnography patterns
Monitors Required for Moderate Sedation

- Continuous EKG monitor
- Noninvasive Blood Pressure monitor
- Pulse Oximetry
- Temperature
- End Tidal CO2 Monitor
  - Has recently become a required monitor for all moderate sedation
End Tidal CO2 (ETCO2) Monitoring in Moderate Sedation

- Exhaled CO2 is a much more rapid detector of respiratory insufficiency than pulse oximetry
  - Earlier intervention often prevents hypoxia and resulting complications

- Moderate Sedation requires a quantitative measurement
  - Numerical accuracy of measurement may be limited with nasal cannula as opposed to measurement via endotracheal tubes due to incomplete gas sampling
  - Monitoring of the waveform itself is of more clinical utility than the numerical value in moderate sedation
Phase I is the beginning of exhalation

Phase I represents most of the anatomical dead space

Phase II is where the alveolar gas begins to mix with the dead space gas and the CO$_2$ begins to rapidly rise

The anatomic dead space can be calculated using Phase I and II

Significant increase in the alveolar dead space signifies V/Q mismatch
Capnography and Respiratory Insufficiency

➢ Airway Obstruction
  - Incomplete obstruction usually results in a diminished waveform
  - Complete obstruction is indicated by absence of waveform
Recording of Patient Status During Procedure

- Must be documented at 5 min intervals (or less)
  - Heart Rate and rhythm
  - Respiratory rate
  - Pulse Oximeter numerical value
  - Blood Pressure
  - Level of consciousness (i.e. can follow verbal commands)
  - Pain assessment
  - Presence of ETCO2 waveform or numerical value (may not be completely accurate with use of nasal cannula)

- Should also include all procedure times, type of procedure, medications administered (dose, time, and route), IV fluids, estimated blood loss, and status of patient at end of procedure