Anesthesia for Urology

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Nurse Anesthesia

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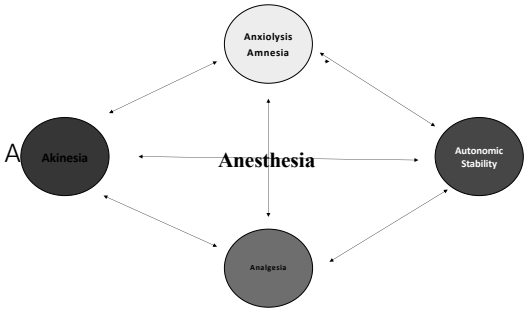

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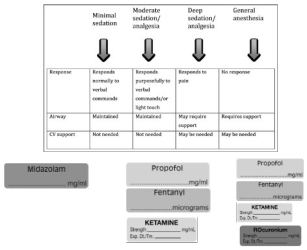
Continuum of Anesthesia



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Monitored Anesthesia Care (MAC)

- MAC vs Local MAC
  - Procedures where localization can occur
    - Cystoscopy
    - Circumcision
    - Prostate Biopsies
  - Less stimulating procedures
- Anxiolysis/Amnesia is the goal for anesthesia
  - Local anesthesia is the analgesia
  - Small amount of IV analgesia
  - Anxiolysis and analgesia should give akinesia and autonomic stability

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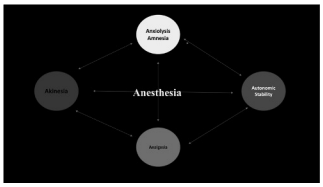
Anesthesia and MAC



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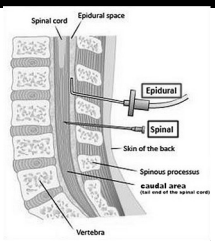
Spinal and Epidural Anesthesia (Neuraxial)

- Block sensation at a specific level of spinal cord
- T10 level is needed for most urology procedures
- Epidural analgesia can be used for post-operative pain following major urology surgery
  - Cystectomy
  - Nephrectomy



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Anatomy of the Epidural Space

- **Epidural Space- Epi (outside) Dural (refers to the dura mater)**
  - **It is the "potential" space outside the dura mater**
  - **Filled with loose connective tissue, fat and blood vessels**
  - **Extends from the foramen magnum to the sacral hiatus**

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Anatomy of the Intrathecal (Subarachnoid) Space

- **Intrathecal- within the theca**
- **Subarachnoid- under the arachnoid mater**
  - **Meneges covering the brain and spinal cord: dura mater, arachnoid mater and the pia mater**
  - **Space between the arachnoid and pia mater**
  - **Space that contains cerebral spinal fluid, the spinal cord and the cauda equina**
  - **Medication is introduced into the subarachnoid space to alter the nerve conduction**

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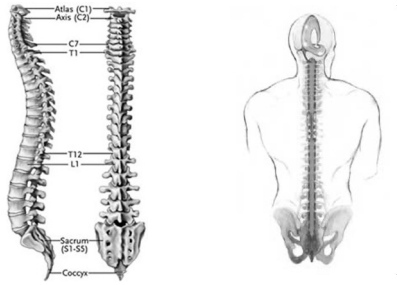
Spinal Column and Epidural Space



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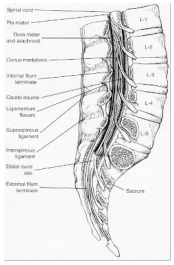
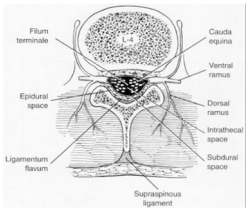
Spinal Canal





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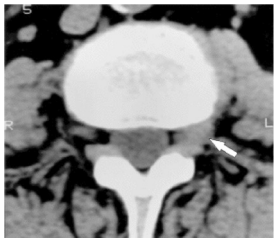
Spinal Canal Radiological Vertical View



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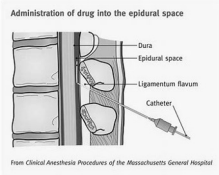
Epidural Anesthesia

- The Epidural Space in Identified with a hollow needle
- A small plastic catheter is advanced into the space
- Needle can be inserted at any level along the spinal column
- Medication is given through the catheter, and it reaches spinal nerves and nerve roots to alter the sensation of pain as it enters the spinal cord



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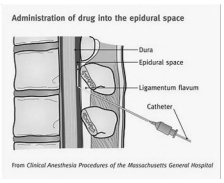
Epidural Anesthesia

- The medicine will spread throughout the epidural space based on volume injected
- Area of anesthesia is determined by:
  - Where the catheter is place in the spinal column
  - Volume (or rate of infusion) given: Greater the volume, the greater the spread



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Epidural Analgesia

- Lumbar Epidural
  - Provide analgesia for lower abdominal and lower extremity cases
  - Can cause weakness in lower extremties and patient are not allowed to ambulate
- Thoracic Epidural
  - Provide analgesia for abdominal surgery using less medication
  - Can spare effects on lower extermities, allowing a patient to ambulate

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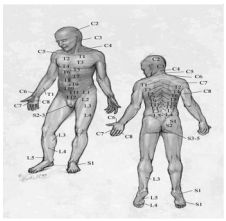
Dermatomes

- Spinal nerves innervate different areas
- Used to determine areas blocked
- Common references:
  - T4 nipple
  - T6 xyphoid process
  - T8 rib cage
  - T10 umbilicus
  - L1 hip



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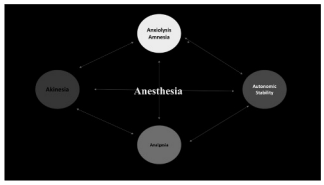
Anesthesia and Spinal/Epidural Anesthesia



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General Anesthesia

- Provides all 4 As of anesthesia
  - Anxiolysis: IV and/or inhalational agents
  - Analgesia: IV and/or inhalational agents
  - Akinesia: IV and/or inhalational agents
  - Autonomic stability: IV agents

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Inhalational Anesthesia

- Vapors that induce and maintain anesthesia
  - Unsure mechanism of action
  - Complete anesthetics
    - Provide all 4 aspects of anesthesia
  - Depth coupled to respirations

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Balanced Anesthesia

- Amnesia/Anxiolysis
  - Midazolam, Propofol, Sevoflurane
- Analgeisa
  - Fentanyl, Acetaminophen
- Akinesia
  - Rocuronium, Cisatricurium
- Autonomic Stability
  - Ephedrine, Phenylephrine

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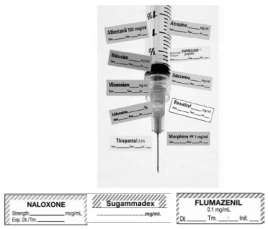
Balanced Anesthesia and Anesthesia Labels

- Orange- Benzodiazepines
  - Anxiolytics
- Yellow- IV General Anesthetics
  - Amnestics
- Grey- Local Anesthetics
  - Analgesics
- Blue-Opioids
  - Analgesics
- Red- Paralytics
  - Akinesia
- Green- Anticholinergics
  - Autonomic Stability
- Purple- Sympathomimetics
  - Autonomic Stability
- White- Everything else
- White Stripes-Antagonist



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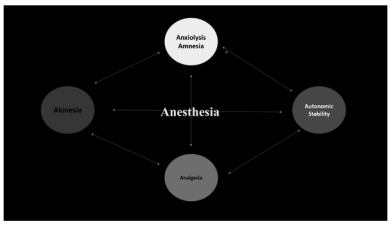
Anesthesia and General Anesthesia



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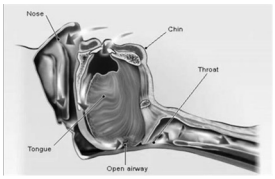
Airway Management

- Apnea is usually due to obstruction
  - Relaxation of the skeletal muscles (tongue)
  - Supine position
- Apnea may be caused by medication
  - Opioids
  - Muscle relaxants



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Tools to Open the Airway

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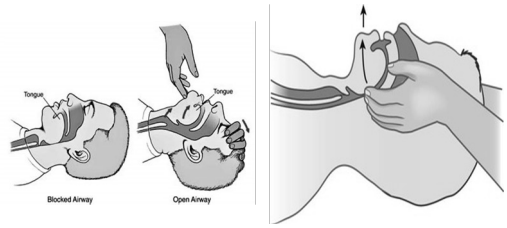
Manual Opening the Airway



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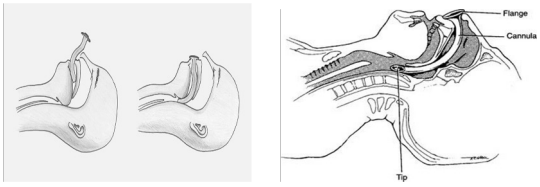
Oral Airway (OPA) vs. Nasal Airway (NPA)



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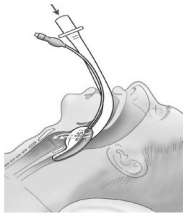
Supraglottic Airway



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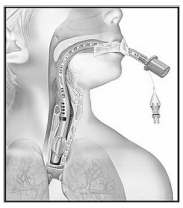
Endotracheal Tube



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Cystoscopy? What type of anesthesia?

- What is the need?
  - MAC? Spinal? General?
  - Anxiolysis/Amnesia/Analgesia/ Akinesia/Autonomic Stability
- What type of cystoscopy?
  - Surveillance?
  - TURBT?
  - TURP?
  - Lithotripsy?
- How much stimulation?
  - SCI patient?

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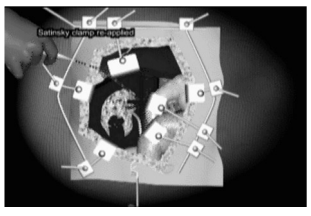
Cystoscopy? What type of anesthesia?

- What is the need?
  - Anxiolysis/Amnesia/Analgesia/ Akinesia/Autonomic Stability
  - General
    - Endotracheal tube
    - Muscle relaxants (Akinesia)
  - Painful
    - Analgesia
      - General + Epidural
  - Autonomic Stability
    - Potential for blood loss?
    - IV access?
    - Cross match blood?
    - Additional monitoring?



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Questions?

Thank you

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