**Mz. ANTICHOLINERGIC vs. CHOLINERGIC EFFECTS**

<table>
<thead>
<tr>
<th>ANTICHOLINERGIC</th>
<th>CHOLINERGIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ↓ Mucus</td>
<td>• Bronchorrhea (large amounts of mucus in airway)</td>
</tr>
<tr>
<td>• Bronchodilation</td>
<td>• Bronchoconstriction</td>
</tr>
<tr>
<td>• Dry mouth</td>
<td>• Salivation</td>
</tr>
<tr>
<td>• Dry eyes</td>
<td>• Lacrimating</td>
</tr>
<tr>
<td>• Urinary retention</td>
<td>• Urination</td>
</tr>
<tr>
<td>• Dry skin</td>
<td>• Diaphoresis/Diarrhea</td>
</tr>
<tr>
<td>• Constipation</td>
<td>• GI Upset</td>
</tr>
<tr>
<td>• Shut down GI</td>
<td>• Emesis</td>
</tr>
<tr>
<td>• Prevents V when trying to intubate</td>
<td></td>
</tr>
</tbody>
</table>

**ACID BASE GASES**

A. **ABG Interpretation**
   a. **Rule of the B’s**
      i. If the pH and the BICARB (HCO₃⁻) are both in the same direction,
      ii. Then it is METABOLIC
   b. ↓ pH = acidosis
   c. ↑ pH = alkaline

B. **Values**
   a. Normal pH = 7.35 – 7.45
   b. Normal Bicarb = 22-26
   c. PaO₂ = 80-100 mmHg
   d. PaCO₂ = 35-45 mmHg
   e. SaO₂ = 95-100%

C. **Signs & Symptoms of Acid-Base Imbalance**
   a. As the pH goes, so goes the patient except for Potassium (bc it will try to compensate)

<table>
<thead>
<tr>
<th>pH UP ↑ K↓ [ALKALOSIS]</th>
<th>pH DOWN ↓ K↑ [ACIDOSIS]</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tachycardia</td>
<td>• Bradycardia</td>
</tr>
<tr>
<td>• Tachypnea</td>
<td>• Bradypnea</td>
</tr>
<tr>
<td>• Diarrhea</td>
<td>• Hypotension</td>
</tr>
<tr>
<td>• Tremors</td>
<td>• ↓ lucidity</td>
</tr>
<tr>
<td>• Seizure</td>
<td>• anorexia</td>
</tr>
<tr>
<td>• Hyperreflexia</td>
<td>• coma</td>
</tr>
<tr>
<td>• Agitated</td>
<td>• lethargy</td>
</tr>
</tbody>
</table>
D. Causes of Acid-Base Imbalance
   a. First ask, “Is it Lung?”
      i. If YES → then it is Respiratory
   b. Then ask yourself:
      i. Are they Overventilating or Underventilating?
         1. If Overventilating → pick Alkalosis
         2. If Underventilating → pick Acidosis
   c. If not lung, then it’s Metabolic
      i. If the patient has prolonged gastric vomiting or suction, pick Metabolic Alkalosis
      ii. For everything else that isn’t lung, pick Metabolic Acidosis
         1. Also, if you don’t know what to pick choose Metabolic Acidosis

VENTILATOR ALARMS

1. High Pressure Alarms are triggered by ↑ resistance to air flow and can be caused by obstructions of three types:
   a. Kinked Tube
      i. NRS ACTION: Unkink it
   b. Water in tubing (caused by condensation)
      i. NRS ACTION: Empty it/Remove H2O
   c. Mucus in airway
      i. NRS ACTION: Turn, C&DB; only use suction if C&DB fails, as a last resort

2. Low Pressure Alarms are triggered by ↓ resistance to air flow and can be caused by disconnections of the:
   a. Tubing
      i. NRS ACTION: Pay attention to where tubing
is... (contamination)
   ii. If on floor, change out
   iii. If on chest, clean with alcohol then put back on
3. **Respiratory Alkalosis (Overventilation)** means ventilator settings may be too **HIGH**.
4. **Respiratory Acidosis (Underventilation)** means ventilator settings may be too **LOW**.
5. To “Wean” → To gradually and incrementally decrease with the goal of ridding all together

---

**ALCOHOLISM**

*Note:* Remember in a psych question if you are asked to prioritize DO NOT forget Maslow! Use the following priorities:

1. Physiological
2. Safety
3. Comfort
4. Psychological
5. Social
6. Spiritual

Also, ALL PSYCH PATIENTS START AS MED SURG PATIENTS...RULE OUT ALL FEASIBLE MED ANSWERS BEFORE PICKING PSYCH ANSWERS

1. **Psychodynamics of Alcoholism**
   a. The #1 psychological problem in abuse is **DENIAL**.
      i. **Definition:**
         1. Refusal to accept the reality of their problem.
      ii. **Treatment:**
         1. Confront it by pointing out to the person the difference between what they say and what they do.
         2. In contrast, support the denial of loss and grief (BC the use of denial is serving a functioning person)
   b. **DEPENDENCY/CODEPENDENCY**
      i. **Dependency:** When the **abuser** gets the significant other to
do things for them or make decisions for them.

ii. **Codependency:** When the significant other derives positive self-esteem from doing other things for or making decisions for the abuser.

iii. **Treatment:**

1. Set boundary (limits) and enforce them. Agree in advance on what requests are allowed then enforce the agreement.
2. Work on the self-esteem of the codependent person.

**c. MANIPULATION**

i. **Definition:** When the abuser gets the significant other to do things for him/her that are not in the best interest of the Significant Other. The nature of the act is dangerous or harmful to the significant other.

ii. **Treatment:**

1. Set limits and enforce.
2. Its easier to treat than dependency/codependency because nobody likes to be manipulated.

**2. Wernicke’s (Korsakoff’s) Syndrome**

a. **Psychosis** induced by Vitamin B1 (Thiamine) deficiency.

b. **Primary symptom:** amnesia with confabulation (making up stories to fill in memory loss—believe as true)

c. **Characteristics:**

i. Preventable
   1. By giving B1 vitamins

ii. Arrestable
   1. Can stop from getting worse- not imply better

iii. Irreversible
   1. Dementia symptoms don’t get better—only worse

**3. Antabuse/Revia**

a. Disulfiram (drugs used for alcoholism)

b. Aversion Therapy

c. Onset and duration of effectiveness: 2 weeks

1. Take drugs 2 weeks and builds up in blood to a level that when drinking alch will become horribly sick; if off for two weeks, will be able to drink without sickness again

d. **Patient teaching:** Avoid ALL forms of alcohol to avoid nausea, vomiting, and possibly death, including:

i. Mouthwash, aftershave, perfumes/cologne, insect repellent,
vinigarettes (salad dressings), vanilla extract, elixirs
(contains alch-OTC med), alcohol prep pad, alch sanitizers

**OVERDOSE VS. WITHDRAWAL**

First ask yourself, is the drug an **upper** or a **downer**?

<table>
<thead>
<tr>
<th>UPPERS</th>
<th>DOWNERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names:</td>
<td>Names:</td>
</tr>
<tr>
<td>• Caffeine</td>
<td>• Everything else</td>
</tr>
<tr>
<td>• Cocaine</td>
<td></td>
</tr>
<tr>
<td>• PCP/LSD (Psychedelic hallucinogens)</td>
<td></td>
</tr>
<tr>
<td>• Methamphetamine-spread</td>
<td></td>
</tr>
<tr>
<td>• ADHD- adderrall/Ritalin</td>
<td></td>
</tr>
<tr>
<td>• Bath Salts (Cath-Kath)</td>
<td></td>
</tr>
<tr>
<td>Signs/Symptoms:</td>
<td>Signs/Symptoms:</td>
</tr>
<tr>
<td>• Tachycardia</td>
<td>• Bradycardia</td>
</tr>
<tr>
<td>• Hypertension</td>
<td>• Hypotension</td>
</tr>
<tr>
<td>• Diarrhea</td>
<td>• Constipation</td>
</tr>
<tr>
<td>• Agitation</td>
<td>• Constricted pupils</td>
</tr>
<tr>
<td>• Tremors</td>
<td>• Flaccidity</td>
</tr>
<tr>
<td>• Clonus</td>
<td>• Respiratory arrest</td>
</tr>
<tr>
<td>• Belligerence</td>
<td>• Decreased core body temp</td>
</tr>
<tr>
<td>• Seizures</td>
<td></td>
</tr>
<tr>
<td>• Exaggerated, shrill, high pitched cry</td>
<td></td>
</tr>
<tr>
<td>• Difficult to console</td>
<td></td>
</tr>
</tbody>
</table>
Then ask yourself, “Are they talking about overdose or withdrawal?”

<table>
<thead>
<tr>
<th>Overdose/Intoxication</th>
<th>Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I have too much…”</td>
<td>“I don’t have enough…”</td>
</tr>
<tr>
<td>Too much upper:</td>
<td>Too little upper:</td>
</tr>
<tr>
<td>→ Everything is UP ↑</td>
<td>→ Everything is DOWN ↓</td>
</tr>
<tr>
<td>Too much downer</td>
<td>Too little downer:</td>
</tr>
<tr>
<td>→ Everything is DOWN ↓</td>
<td>→ Everything is UP ↑</td>
</tr>
</tbody>
</table>

**Drug Addiction in the Newborn**

Always assume intoxication (first 24 hours after birth), then after this time, assume withdrawal.

**Alcohol Withdrawal Syndrome vs. Delirium Tremens**

1. **Differences:**
   a. Every alcoholic goes through alcohol withdrawal syndrome (AWS) (after 24 hours)
   b. Only a minority get delirium tremors (DT)
   c. AWS is not life threatening. DT’s can kill you.
   d. Patients with AWS are not dangerous to themselves or others.
      Patients with DTs are dangerous to self and others.

<table>
<thead>
<tr>
<th>AWS</th>
<th>DT’s</th>
<th>BOTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-private-anywhere</td>
<td>Private-near nurses station</td>
<td>Anti-hypertensives</td>
</tr>
<tr>
<td>Regular diet</td>
<td>Clear liquids or NPO</td>
<td>Tranquilizer</td>
</tr>
<tr>
<td>Up Ad Lib (no activity restriction)</td>
<td>Restricted bedrest (no bathroom privileges)</td>
<td>B1 multi-vitamin (to prevent dementia)</td>
</tr>
<tr>
<td>Do not restrain</td>
<td>Should be restrained (2 pt leather restraints)</td>
<td>2 extremity restricted—arm on one side and leg on one, one upper extremity and one opposite lower extremity</td>
</tr>
</tbody>
</table>
AMINOGLYCOSIDES

1. Think “A mean old mycin”
2. Powerful antibiotics—to treat severe, life-threatening, resistant infections
3. All aminoglycosides end in ‘mycin’, but not all drugs that end in mycin are aminoglycosides. For example..
   a. Azithromycin, clarithromycin, erythromycin thromycin → NOT
4. Examples of aminoglycosides: Streptomycin, Cleomycin, Tobramycin, Gentamicin, Vancomycin, Clindamycin
5. Toxic Effects:
   a. The most famous feature of the world’s most famous mouse (ears)
      i. Toxic effect: ototoxicity
      ii. Must monitor hearing, balance, tinnitus
   b. The human ear is shaped like a kidney
      i. Toxic effect: nephrotoxicity
      ii. Monitor: creatinine
         1. Best indicator of kidney function
         2. 0.6-1.2 mg/dL
   c. The number 8 drawn inside the ear reminds you of:
      i. Cranial nerve 8 (Drug toxic to)
      ii. Frequency of administration: Every 8 hours
6. Route of Administration
   a. Give IM or IV
   b. Do not give PO (not absorbed) except in these two cases:
      i. Hepatic encephalopathy
         1. Also called Liver Coma, Ammonia-Induced Encephalopathy
         2. When want a sterile bowel
         3. Due to a high ammonia level
      ii. Pre-op Bowel surgery
         1. REMEMBER this military sound off:
            a. NEOmycin
            b. KANmycin
            c. WHO CAN STERILIZE MY BOWEL? NEO KAN
            d. ^ PO, 2 bowel sterilizers
7. Trough and Peak Levels
   a. Reason for drawing TAP levels: narrow therapeutic range
b. Time table:

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>TROUGH (lowest)</th>
<th>PEAK (highest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sublingual</td>
<td>30 min before next dose</td>
<td>5-10 mins after drug dissolve</td>
</tr>
<tr>
<td>IV</td>
<td>30 min before next dose</td>
<td>15-30 min after drug finished</td>
</tr>
<tr>
<td>IM</td>
<td>30 min before next dose</td>
<td>30-60 min after drug given</td>
</tr>
<tr>
<td>SQ</td>
<td>30 min before next dose</td>
<td>See diabetes lecture</td>
</tr>
<tr>
<td>PO</td>
<td>30 min before next dose</td>
<td>Forget about it.</td>
</tr>
</tbody>
</table>

BIOTERRORISM

1. Categories of Biological Agents
   a. Category A (Most serious)
      i. Small pox
      ii. Tularemia
      iii. Anthrax
      iv. Plague
      v. Hemorrhagic fever [Ebola]
      vi. Botulism
   b. Category B
      i. All others. A long list.
   c. Category C
      i. Hanta virus
      ii. Nipah virus

2. Category A Biological Agents
   a. Smallpox
      i. Inhaled transmission/on Airborne Precautions
      ii. Dies from septicemia. Blood infection. *only class A that dies from this.
      iii. Rash starts around mouth first (early ID & isolation is crucial to contain)
   b. Tularemia
      i. Inhaled
ii. Chest symptoms (coughing, chest pain, sputum)
iii. Dies from respiratory failure
iv. Treat with Streptomycin (watch hearing and creatinine)

c. Anthrax
i. Spread by inhalation
ii. Looks like flu (chest symptoms and achy muscles)
iii. Dies from respiratory failure
iv. Treat with Cipro, PCN, and streptoycin

d. Plague
i. Spread by inhalation
ii. Has the 3 H’s:
   1. Hemoptysis (coughing up blood)
   2. Hematemesis (vomiting blood)
   3. Hematochezia (bloody diarrhea)
iii. Dies from respiratory failure and DIC
iv. Treat with Doxycycline and Mycins
v. No longer communicable after 24 hours of treatment

e. Hemorrhagic Fever [Ebola]
i. 21 day time frame
ii. Primary symptoms are petechia and ecchymosis
iii. High % fatal
iv. Die of DIC

f. Botulism
i. Ingested (drink/eat)
ii. Has 3 major symptoms:
   1. Descending paralysis (starts at head-goes down to diaphragm)
   2. Fever
   3. But is alert
iii. Dies from respiratory failure

3. Chemical Agents
   a. Mustard Gas → Blisters (Vesicant, eventually cover airway)
   b. Cyanide → Respiratory arrest. Treat with Sodium Thiosulfate IV
   c. Phosgine chloride → Choking
   d. Sarin → Nerve agent.
      i. Symptoms (Cholinergic Effects)
         1. Bronchorrhrea
         2. Bronchoconstriction
         3. Salivation
         4. Lacrimating
5. Urination
6. Diaphoresis/diarrhea
7. GI upset
8. Emesis

4. All chemical agents require only soap and water cleansing except for Sarin, which requires a bleach
   a. Nursing Actions: Bioterrorism- Isolation, Antibiotics
   b. Chemical: Decontamination
      i. Send all suspected cases to decontamination center
      ii. Remove all clothing
      iii. Chemical hazard double bag
      iv. Incinerated
      v. Shower in soap and water (bleach- sarin)
      vi. Discharged in government clothes

**CALCIUM CHANNEL BLOCKERS**

**Note:** They are like Valium for your heart

1. Calcium Channel Blockers: **Negative** [ ino, chrono, dromo ]
   Dig is only drug that mixes + & - effects; other 99% either have + or -

<table>
<thead>
<tr>
<th>ACTION</th>
<th>DEFINITION</th>
<th>POSITIVE ↑</th>
<th>NEGATIVE ↓</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inotropic</strong></td>
<td>Strength of heartbeat</td>
<td>Strong</td>
<td>Weak</td>
</tr>
<tr>
<td><strong>Chronotropic</strong></td>
<td>Rate of heartbeat</td>
<td>Fast</td>
<td>Slow</td>
</tr>
<tr>
<td><strong>Dromotropic</strong></td>
<td>Conductivity</td>
<td>Excitable</td>
<td>Blocks/Slows conduction</td>
</tr>
</tbody>
</table>

2. What do Calcium Channel Blockers treat? (Indications)
   a. **Antihypertensives** (BP way UP-relaxes blood vessels)
   b. **Antianginal** (relaxes- reduces O2 demand)
   c. **Anti Atrial Arrhythmia** (does not tx ventricular arrhythmias)

3. **Side Effects(↑):**
   a. Headache
   b. Hypotension
   c. Bradycardia

4. **Names of Calcium Channel Blockers**
   a. –soptin (Verapeunil)
   b. –zem
   c. –dipine
5. Nursing Actions: before administrating – BP systolic lower than 100..if < 100 hold and call Dr

CARDIAC ARRYTHMIAS

1. Terminology
   a. “QRS depolarization” always refer to ventricular (not atrial, junctional, or nodal)
   b. “P wave” refers to atrial

2. Six rhythms tested on NCLEX
   a. Asystole
      i. A lack of QRS depolarization’s (a straight line)
   b. Atrial flutter
      i. Rapid P-wave depolarization’s in a saw-tooth (flutter)
   c. Atrial fibrillation
      i. Chaotic P-wave depolarization’s (lacks any discernable pattern)
   d. Ventricular fibrillation
      i. Chaotic QRS depolarization’s
   e. Ventricular tachycardia
      i. Wide, bizarre QRS’s
      ii. Tachy is always discernable repeating pattern
   f. Premature ventricular contractions (PVC)
      i. Periodic wide, bizarre QRS’s
      ii. Generally low to moderate priority. unless everyone else has a normal rhythm
      iii. Be concerned, if:
         1. More than 6 per minute
         2. 6 in a row
         3. PVC falls of T-wave of previous beat

3. Lethal arrhythmias
   a. Asystole
   b. V-fib

4. Potentially life threatening arrhythmia: V-tach
   a. Pulseless v-tach; same as asystole and v. fib and would depend on how long down
   b. After 8 mins consider dead

5. Treatment
   a. PVC’s
      i. **Lidocaine** (Ventricular, lasts longer), **Amiodorone**
   b. V Tach
i. *Lidocaine*

c. Supraventricular arrhythmias
   i. *Adenosine* (push fast IV push; usually 8s or faster)
   ii. *Beta-Blockers* (-lol)
   iii. *Calcium Channel Blockers*
   iv. *Digoxin (Digitalis) Lanocin*

d. V-Fib
   i. Best treatment electrically
   ii. Shock = 200 Defibrillate

e. Asystole
   i. Epinephrine
   ii. Atropine
   iii. S/E anticholinergics
CHEST TUBES

The purpose for chest tubes is to re-establish negative pressure in the pleural space
1. In a pneumothorax, the best tube removes air
2. In a hemothorax, the chest tube removes blood
3. In a pneumohemothorax, the chest tube removes air and blood

Location of chest tubes:
1. Apicals (HIGH) for Air
   a. Label “A”- up high
2. Basilar (LOW) for Blood
   a. Label “B”- placed at base; bottom of lung

Examples
1. How many chest tubes (and where) for unilateral pneumohemothorax?
   a. 2; apical and basilar all on same side
2. How many chest tubes (and where) for bilateral pneumothorax?
   a. 2; apical right and left
3. How many chest tubes (and where) for post-op chest surgery?
   a. 2; apical and basilar unilateral
   b. Exception: If surgery total pneymonectomy then no chest tube bc no pleural space
   c. Always assume chest trauma and surgery is unilateral

Problem Solving

1. What do you do if you kick over the collection bottle?
   a. Not a big deal; can just sit it right back up; have take a couple deep breaths
2. What do you do if the water seal breaks?
   a. This is more serious, because it is allowing air in creating a 2 way
   b. First: Clamp chest tube (Better no way than 2 way for brief period of time) **in routine care never clamp chest tube!!
   c. Best: Submerge
      i. Cut tube away (down) by device; submerge under water preferably sterile-then unclamp
3. What do you do if the chest tube comes out?
a. **First:** cover hole with gloved hand; Vaseline gauze dressing; 4 sided sterile dressing; tape
b. **Best:** Vaseline gauze

4. Bubbling
   a. Ask yourself two questions:
      i. **WHEN** is it bubbling
      ii. **WHERE** is it bubbling

5. Rules for clamping the tube:
   a. Never clamp for longer than 15 **seconds** without a Dr.’s order
   b. Use **rubber tipped double clamp**
CONGENITAL HEART DEFECTS

Every congenital heart defect is either TROUBLE or NO TROUBLE

 Trouble

R-L → Blood shunts
B → Cyanotic
T → All CHD’s beginning with “T” are trouble
   Exception → Left ventricular hyperplastic syndrome

<table>
<thead>
<tr>
<th>Examples of “Trouble”</th>
<th>Examples of “No Trouble”</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tricuspid</td>
<td>• Ventricular septal defect</td>
</tr>
<tr>
<td>• Tricuspid arterioles</td>
<td>• Patent foramen ovale</td>
</tr>
<tr>
<td>• Tetralogy of Fallot</td>
<td>• Patent ductus arterioles</td>
</tr>
<tr>
<td></td>
<td>• Pulmonary</td>
</tr>
</tbody>
</table>

All CHD kids have two things whether trouble or not:
1. Murmur
2. All get echocardiogram done (@ least 1)

Four defects present in Tetralogy of Fallot:
1. VarieD → Ventricular Defect
2. PictureS → Pulmonic Stenosis
3. Of A → Overriding Aorta
4. RanchH → Right Hypertrophy
CRUTCHES, CANES, & WALKERS

1. How to measure: **2-3 finger widths** below anterior axillary fold to a point **lateral to** and slightly in front of foot.
2. When the handgrip is properly placed, the angle of elbow flexion will be **30 degrees**.
3. Types of gaits:
   a. **2-Point Gait**
      i. **Step One:** Move one crutch and opposite foot **together**
      ii. **Step Two:** Move other crutch and other foot together
      iii. **Remember:** 2 points together for a 2 point gait
      iv. **Examples:** one knee replacement
   b. **3-Point Gait**
      i. **Step One:** Move two crutches and bad leg together
      ii. **Step Two:** move good foot by self
      iii. **Remember:** 3 point is called 3 point because three points touch down at once
      iv. **Examples:** Stairs
   c. **4-Point Gait**
      i. **Step One:** One crutch
      ii. **Step Two:** Opposite foot
      iii. **Step Three:** Other Crutch
      iv. **Step Four:** Other food
      v. **Examples:** total both knee right after surgery
   d. **Swing-through:** for two braced extremities
      i. **Examples:** arthritis braced legs
4. When to use each gait
   a. Use the **even** numbered gaits (2&4 point) when weakness is **evenly** distributed (bilateral). Two point for mild problem; four-point for severe problem
   b. Use the **odd** numbered gait (3 point) when one leg is **odd** (unilateral problem)
5. Stairs: which foot **leads** when going up and down stairs on crutches?
   a. **Remember:** **UP** with the good; **DOWN** with the bad
   b. The crutches always move with the **bad** leg
6. Cane
   a. Hold can on the **strong (unaffected)** side
   b. Advance cane with the **weak** side for a wide base of support
7. Walkers
a. Pick it up, set it down, walk to it
b. Tie belongings to side of walker, not front
c. Getting out of chair to walker- always push, never pull (same for cane, crutches)

DELUSIONS, HALLUCINATIONS, & ILLUSIONS

1. Psychotic vs Non-Psychotic
   a. A non-psychotic person has insight & is reality based
   b. A psychotic person has NO insight and is NOT reality based

2. Delusions
   a. Definition: a delusion is a false, fixed belief or idea or thought. There is no sensory component.
   b. Three types of delusions:
      i. Paranoid or Persecutory: false, fixed belief that people are out to harm you.
      ii. Grandiose: False, fixed belief that you are superior
      iii. Somatic: False, fixed belief about parts of your body

3. Hallucinations
   a. Definition: a hallucination is a false, fixed sensory experience
   b. Five types of hallucinations:
      i. Auditory (most common* hearing)
      ii. Visual
      iii. Tactile
      iv. Olfactory
      v. Gustatory

4. Illusions
   a. Definition: An illusion is a misinterpretation of reality. It is a sensory experience.
   b. Differentiation between illusions & hallucinations: with illusions there is a referent in reality

5. When dealing with a patient experiencing delusions, hallucinations or illusions, first ask yourself, “What is their problem?”
   a. Functional Psychosis
   b. Psychosis of Dementia
   c. Psychotic Delirium

6. Functional Psychosis
   a. These are:
      i. Schizophrenia
ii. Schizoaffective Disorder  
iii. Major Depression  
iv. Mania  
b. Patient has the potential to learn reality  
c. Four steps:  
   i. Acknowledge how they feel  
   ii. Present reality  
   iii. Set a limit  
   iv. Enforce the limit  

7. Psychosis of dementia  
a. These are:  
   i. Alzheimers  
   ii. Senility  
   iii. Organic Brain Syndrome  
   iv. Post Stroke  
   v. Wernickes  
b. This patient has a destructive problem and cannot learn reality.  
c. Two steps:  
   i. Acknowledge their feelings  
   ii. Redirect  

8. Psychotic delirium  
a. Description: Episodic, temporary, sudden onset, dramatic, loss of reality, secondary to a chemical imbalance  
b. Two steps:  
   i. Acknowledge their feeling  
   ii. Reassure (it will get better, I will keep them safe)  

9. Loosening of association  
a. Flight of Ideas: stringing phrases together  
b. Word salad: string words together  
c. Neologisms: making up new words  

10. Narrowed self-concept:  
a. when a PSYCHOTIC refuses to:  
   i. Leave the room and refuses to change their clothing  
   ii. Action- do not make them! Tell them they can wait until they are ready  

11. Ideas of reference  
a. When you think everyone is talking about you
DIABETES MELLITUS

1. **Definition**: DM is an error of glucose metabolism
   a. (vs Diabetes Insipidus polyuria, polydipsia leading to dehydration)

2. **Types**:
   a. **Type I**
      i. Insulin dependent
      ii. Juvenile Onset
      iii. Ketosis prone (tend to make ketones)
   b. **Type II**
      i. “Non” all the above
      ii. “Non” insulin dependent
      iii. “Non” juvenile onset
      iv. “Non” ketosis prone

3. **Signs and Symptoms**
   a. Polyuria
   b. Polydipsia
   c. Polyphagia

4. **Treatment**
   a. **Type I**
      i. Diet (3)
      ii. Insulin (1)
      iii. Exercise(2)
   b. **Type II**
      i. Diet (1)
      ii. Oral hypoglycemics (3)
      iii. Activity (2)
   c. **Diet (type II)**
      i. Calorie restriction
      ii. Need to eat 6x a day
   d. Insulin acts to lower blood sugar
      i. Types of insulin
<table>
<thead>
<tr>
<th>Type of Insulin</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR (clear, short acting, rapid; IV)</td>
<td>1 hour</td>
<td>2 hours</td>
<td>4 hours</td>
</tr>
<tr>
<td>NPH (cloudy, intermediate acting)</td>
<td>6 hours</td>
<td>8-10 hours</td>
<td>12 hours</td>
</tr>
<tr>
<td>HUMALOG (Insulin Lispro) (Worlds fastest acting; give with meals)</td>
<td>15 minutes</td>
<td>30 minutes</td>
<td>3 hours</td>
</tr>
<tr>
<td>Lantus (Glargine) (long acting insulin)</td>
<td>Slow absorption</td>
<td>No peak, therefore no risk of hypoglycemia</td>
<td>12-24 hours</td>
</tr>
</tbody>
</table>

ii. Check expiration date
   1. After open new expiration date 20-30 days after opening

iii. Refrigeration: optional for opened; necessary for unopened

e. Exercise Potentiates (decreases) insulin:
   i. If more exercise, need decrease insulin
   ii. If less exercise, need increase insulin

f. Sick days
   i. Take insulin (even if not eating!)
   ii. Take sips of H2O to prevent dehydration
   iii. Stay as active as possible

5. Complications of DM
   a. Low Blood Sugar in Type I DM (=insulin shock) [Hypoglycemia]
      i. Causes:
         1. Not enough food
         2. Too much exercise
         3. Too much insulin
      ii. Danger:
         1. Permanent brain damage
      iii. Signs and Symptoms
         1. Cerebral impairment & vasomotor collapse (blood vessel wall muscles don’t have enough E to maintain tone) → slurred speech, staggered gait, abnormal reaction time, uncontrolled emotions, lowered BP, increased pulse, skin pale, cold, clammy, inattentive to social boundaries
      iv. Treatment
         1. Administer rapidly metabolizable Carbohydrates (sugar)
2. Ideal combination: **food with sugar and protein** (& maybe starch)
3. If unconsciousness: **Nothing! Glucagon IM, Dextrose IV, never anything in mouth!**

b. **High Blood Sugar in Type I DM - DKA Diabetic Coma [Hyperglycemia]**
   i. **Causes:**
      1. Too much **food**
      2. Not enough **insulin**
      3. Not enough **exercise**
      4. **#1 cause is acute viral upper respiratory infection within the last week or two**
   ii. **Signs and Symptoms**
      1. Dehydration (appear dry, hot, flush, HA, pulse weak, thready, increase in temp)
      2. Ketones (in urine & blood); increase in K+; Kussmaul respirations
      3. Acidotic; acetone (fruity) breath; anorexia with nausea
   iii. **Treatment**
      1. IV with regular insulin @ 200/hr at high flow rate

c. **Low Blood Sugar in Type II DM (Hypoglycemia)**
   i. Treatment is the same as for low BGM in Type I Diabetes

d. **High Blood Sugar in Type II DM (Hyperglycemia)**
   i. Called HHNK (or HHNC):
      1. Hyperosmolar, hyperglycemic, non-ketotic coma
   ii. This is **dehydration**
   iii. Signs & symptoms are like S&S of **dehydration**
      1. Including: increased temp
   iv. **Treatment:** rehydrate (glucose will usually turn to normal on own)

e. Long term complications are related to two problems:
   i. Problems with tissue perfusion
   ii. Peripheral neuropathy (nerve damage)

f. Which lab test is the best indicator of LT BGM control (compliance/effectiveness) ? **Hemoglobin A1C**
   i. HA1C for **dx → >6.5 → DM/pre DM**
   ii. **Monitoring tx → >7.0 out of control**
# Drug Toxicities

<table>
<thead>
<tr>
<th>Drug</th>
<th>Therapeutic Level</th>
<th>Toxic Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium (antimania)</td>
<td>0.6-1.2</td>
<td>≥ 2.0</td>
</tr>
<tr>
<td>Lanoxin (uses #1 CHD #2 atrial arrhythmias)</td>
<td>1-2</td>
<td>≥2</td>
</tr>
<tr>
<td>Aminophylline (airway antispasmodic)</td>
<td>10-20</td>
<td>≥20</td>
</tr>
<tr>
<td>Dilantin (seizures)</td>
<td>10-20</td>
<td>≥20</td>
</tr>
<tr>
<td>Bilirubin (not a drug)</td>
<td>Elevated hyperemobilirubin 10-20 Toxic &gt;20</td>
<td>Kernicterus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bilirubin &gt;20; crosses BBB in CSF- invaded brain causes encephalitis meningitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Opisthotonos</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Position of extension seen with kernicterus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Arching d/t bili irritation in brain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Place this child on his/her side</td>
</tr>
</tbody>
</table>

- Total bilirubin: 0-1.0 mg/dl
- Direct (conjugated) bilirubin: 0-0.3 mg/dL
- Indirect (unconjugated) bilirubin: 0-0.3 mg/dL
<table>
<thead>
<tr>
<th></th>
<th>HIATAL HERNIA (2 chambered stomach)</th>
<th>DUMPING SYNDROME</th>
</tr>
</thead>
</table>
| **DEFINITION**       | • Regurgitation of acid into esophagus, because upper stomach herniates upward through the diaphragm  
                        • Gastric contents move in the wrong direction (UP instead of DOWN) direction at the correct rate | • Post op gastric surgery complication in which gastric contents dump too quickly into the duodenum  
                        • Gastric contents move in the correct (DOWN) direction at the wrong (too fast) rate |
| **SIGNS & SYMPTOMS**  | Upper GI S/S:  
                        • Indigestion  
                        • Heart burn  
                        • GERD  
                        • Chest pain | Lower GI S/S  
                        • Acute lower abdominal distress: diarrhea, cramping, gas, abdominal pain, cramping, guarding, splinting, rigidity, distension  
                        • Drunk (look), all blood going to gut not brain (cerebrally impaired; confused)  
                        • Shock: blood in parasympathetic system; pale, cold, clammy, decreased BP, rapid pulse  
                        • D&S hypoglycemis |
| **Treatment**         | 1. Raise HOB (High Fowlers)  
                        2. High Fluids  
                        3. High Carbs (Decrease Protein) | 1. Low HOB  
                        2. Low/Restricted fluids-in between meals  
                        3. Low Carbs (Increase Protein) |
**ELECTROLYTES**

**KALEMIAS** do the **same** the prefix except for **heart rate** and **urine output**

<table>
<thead>
<tr>
<th>HYPERKALEMIA</th>
<th>↑ HR</th>
<th>↓ UO</th>
<th>HYPOKALEMIA</th>
<th>↓ HR</th>
<th>↑ UO</th>
</tr>
</thead>
</table>

**CALCEMIAS** do the **opposite** the prefix. No exceptions. [& anything to BP]

<table>
<thead>
<tr>
<th>HYPERCALCEMIA</th>
<th>↓</th>
<th>HYPOCALCEMIA</th>
<th>↑</th>
</tr>
</thead>
</table>

Two signs of neuromuscular irritability associated with **low calcium**:

1. **Chovostek's sign** ↑
   - Tap cheek → spasm

2. **Trousseau's sign** ↑
   - Put on BP cuff and arm goes into carpal spasm (arm looks like swan neck)
**MAGNESEMIAS** do the opposite the prefix
Note: In a tie, never pick Mg. If symptom involves nerve or skeletal muscle, pick **Calcium**. For any other symptom, pick **Potassium**

<table>
<thead>
<tr>
<th>Hypermagnesemia ↓</th>
<th>Hypomagnesemia ↑</th>
</tr>
</thead>
</table>

**NATREMIAS**

<table>
<thead>
<tr>
<th>Hypernatremia</th>
<th>Hyponatremia</th>
</tr>
</thead>
<tbody>
<tr>
<td>“E” → dehydration</td>
<td>“O” → overload</td>
</tr>
<tr>
<td>- Poor skin turgor</td>
<td></td>
</tr>
<tr>
<td>- Dark urine</td>
<td></td>
</tr>
<tr>
<td>- Hot flushed skin</td>
<td></td>
</tr>
<tr>
<td>- Increase urine specific gravity</td>
<td></td>
</tr>
<tr>
<td>- Weak, thready pulse</td>
<td></td>
</tr>
<tr>
<td>- Increased weight</td>
<td></td>
</tr>
<tr>
<td>- Edema</td>
<td></td>
</tr>
</tbody>
</table>
The earliest sign of any electrolyte disorder is **numbness (paresthesia) & tingling**

The **universal** sign/symptom of electrolyte imbalance is **muscle (paresis) weakness**

**ELECTROLYTE TREATMENT**
1. **Never** push **Potassium IV** [Fatal]
2. Not more than **40 mEq** of K+ per liter of IV fluid [clarify if over 40]
3. Give **D5W with regular insulin** to decrease K+ [carrier mediated transport]
4. **Kayexalate** [K-exit-late]
   a. Puts drug in gut, full of sodium; Na picked up by bloodstream; Doesn’t need that much + charge, so body exchanges for K, diarrhea)
   b. B/C is slow → do this with D5W + insulin
1. **Hyperthyroidism** (Hyper-Metabolism)
   i. **Signs & Symptoms**
   1. ↓ weight ♦ tachycardia ♦ BP ♦ Agitation ♦ Restlessness ♦ nervousness ♦ diarrhea ♦ ↑ energy ♦ bulging eyes ♦ warm ♦ <3 organ most effective

ii. **Graves** Disease [literally run self into grave]

iii. The problem is hyperthyroidism. Treatment options:
   1. *Radioactive Iodine*
      a. Watch out for urine [DANERGOUS]
         i. Use private bathroom
         ii. Flush 2-3 times
   2. *PTU (Protothyroidircil) *sp*
      a. Cancer drug-knocks out cells metastizing problem- agranulocytosis (↓ WBC)
      b. Education- isolation, wear mask, no kids

3. *Surgical removal*
   a. Thyroidectomy (remove thyroid)
      i. **Total thyroidectomy**
         1. Need lifelong T3, T4 hormone replacement
         2. At risk for hypocalcemia (bc at risk for loosing parathyroid gland)
         3. S/S hypocalcemia: tetany
            a. Earliest sign: paresthesia
   ii. **Subtotal thyroidectomy**
      1. At risk for thyroid storm
      2. S/S thyroid storm:
         a. Very high fever >104 F
         b. Very high V/S
         c. Psychotic Delirium *life threatening priority
3. Treatment
   a. Wait out: either die, come out, give O2 and lower body temp
   b. Tx focuses on saving the brain until they come out of it
   c. Lowering body temp:
      i. Ice packs: on axilla, axilla, groin, groin, back, neck
      ii. Cooling blanket
   iii. Post-op risks 1st 12 hours
       airway&hemorrhage
       • **after first 12 ours it is assumed that the patient is stable
       • Post-op risks 12-48 hours for TOTAL: ↓ calcium (tetany)
       • Post-op risks 12-48 for SUB-TOTAL: Thyroid storm

2. Hypothyroidism (Hypo-Metabolism)
   a. Signs & Symptoms
      i. ↑ weight♦ cold♦ sluggish♦ slow♦ decreased
         BP♦ bradycardia♦ hair and nails brittle♦ decreased E
   b. Name of disease: mxyedema
   c. Treatment: thyroid pills
   d. Caution: DO NOT sedate these patients! (already ↓
   e. Surgical Implication: call anesthesiologist and ask if thyroid pills should be held. Do not do well with anesthesia

Adrenal Cortex Diseases (start with letters A or C)
1. Addison’s Disease
   a. Under secretion (too little) of adrenal cortex
   b. Signs & Symptoms
• Hyperpigmented (3 or 4 shades darker than before)
• Inability to adapt normally to stress—sends off limit—shock

c. Treatment
   i. Give steroids [glucocorticoids and mineralcorticoids]
      1. Steroids all end in –sone

2. Cushing’s Syndrome
   a. Over secretion of adrenal cortex
   b. Signs & Symptoms [also reflex S/S of steroids]
   c. Treatment: adrenoectomy
INFECTIONOUS DISEASE & TRANSMISSIONN-BASED PRECAUTIONS

Contact:
For:
1. Herpes,
2. anything Staph (MRSA),
3. Enteric (intestinal) [cholera, shigellosis, rotovirus],
4. RSV (Respiratory Syncitial Virus)
   a. [spread droplet; but research found this is best for precautions]

Select all that apply

| Private Room | Eye/Face Shields |
| Mask         | Special Filter Respirator Masks |
| Gloves       | Pt wear mask when leaving room |
| Gown         | Disposable supplies |
| Handwashing  | Negative air flow |

Droplet: For
1. ALL Viruses
2. ALL Influenzas [DTaP, Pertussis, Mumps]

Select all that apply

| Private Room | Eye/Face Shields |
| Mask         | Special Filter Respirator Masks |
| Gloves       | Pt wear mask when leaving room |
| Gown         | Disposable supplies |
| Handwashing  | Negative air flow |
**Airborne:**

**For:**

1. TB *(spread droplet)*
2. Chicken Pox (varicella)
3. Measles
4. SARS (Severe acute respiratory system)

<table>
<thead>
<tr>
<th>Select all that apply</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Private Room</td>
<td>Eye/Face Shields</td>
</tr>
<tr>
<td>Mask</td>
<td>Special Filter Respirator Masks</td>
</tr>
<tr>
<td></td>
<td><strong>w/ TB only N95</strong></td>
</tr>
<tr>
<td>Gloves</td>
<td>Pt wear mask when leaving room</td>
</tr>
<tr>
<td>Gown</td>
<td>Disposable supplies</td>
</tr>
<tr>
<td>Handwashing</td>
<td>Negative air flow</td>
</tr>
</tbody>
</table>
PERSONAL PROTECTIVE EQUIPMENT (PPE)

Unless otherwise specified, assume that PPE includes: Gowns, Goggles, Mask, Gloves

The proper place for donning (putting on) PPE is outside of the room

The proper order for donning PPE is:
1. Put on gown
2. Put on mask
3. Put on goggles
4. Put on gloves

The proper place for removing (doffing) PPE is inside room

The proper order for removing PPE is:
1. Gloves
2. Goggles
3. Gown
4. Mask → need to take mask off outside so you don’t breathe in contaminated air

In airborne precautions ONLY, the mask is removed outside of the room
HANDWASHING AND GLOVING

Handwashing

Handwashing versus Scrubbing

<table>
<thead>
<tr>
<th></th>
<th>Handwashing</th>
<th>Scrubbing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Hands below elbows</td>
<td>Elbows below hands</td>
</tr>
<tr>
<td>Length</td>
<td>Seconds</td>
<td>Minutes</td>
</tr>
<tr>
<td>Handles</td>
<td>Yes; sink with handles</td>
<td>No sink with handles</td>
</tr>
<tr>
<td>When</td>
<td>Upon entry or leaving room before and after gloving, when soil hands</td>
<td>When patient is immunosuppressed for any reason</td>
</tr>
<tr>
<td>Use</td>
<td>Soap and water</td>
<td>Something with chloro in it</td>
</tr>
</tbody>
</table>

Use an Alcohol-Based Solution
1. On entering or leaving a room
2. Before putting on gloves, after taking off gloves
3. Cannot → after soil hands!!

What about after using the rest room? → must use soap and water

Dry from cleanest (hand) to dirtiest (elbow)

Turn water off with new paper towel

Sterile Gloving
Glove dominant hand first.
Grasp outside of cuff.
Touch only the inside of glove surface.
Do not roll cuff.
Fingers inside of second glove cuff.
Keep thumb abducted back.
Only touch outside surface of glove
Skin touches inside of glove
Outside of glove only touches outside of glove
Remove glove to glove
   Skin to skin
INTERDISCIPLINARY CARE

Identifying which patients need interdisciplinary care...different than prioritizing who would most benefit from a team working together on their care.

Patients who do not need interdisciplinary care: Patients who need or have multiple doctors

Patient who DO need interdisciplinary care:

1. Major Criteria
   a. Patients with multi-dimensional needs
      i. For example:
         1. Physical
         2. Psychological
         3. Social
         4. Spiritual
         5. Intellectual needs
   b. Patients who need rehabilitation

2. Minor Criteria [choosing between patients]
   a. A patient whose current treatment is ineffective
   b. A patient who is preparing for discharge
LAB VALUES

A=ABNORMAL $\rightarrow$ Do Nothing
B= BE CONCERNED $\rightarrow$ Assess/Monitor
C=CRITICAL $\rightarrow$ Do Something
D = DEADLY DANGEROUS $\rightarrow$ Do Something NOW

Creatinine
• Best indicator of Kidney Function
• 0.6-1.2
• Elevated = A

INR (International Normalized Ratio)
• Monitors Coumadin (Warfarin) Therapy [Anticoagulant]
• Therapeutic 2-3
• > 4 = C
  o Patient could bleed to death
  o Hold all warfarin
  o Assess for bleeding
  o Prepare to administer Vitamin K
  o Call Physician

Potassium (K+)
• 3.5-5.3
• Low=C [Hypokalemia]
  o Assess the heart (may include EKG which aid can do)
  o Prepare to give K+
  o Call physician
• 5.4-5.9 = C [Hyperkalemia]
• High but still in the 5’s
  o Hold K+
  o Assess heart (may include EKG which aid can do)
  o Prepare Kayexelate and d5W with regular insulin
  o Call physician
• > 6 = D Cardiac Danger Zone
  o Do steps simultaneously
  o Need help once levels hit 6; if cardiac symptomatic call rapid response team
pH
- 7.35-7.45 (as pH drops so does the patient)
- K+ can increase which can stop the heart
- Low pH in the 6's = D [severe acidosis]
- Immediately assess vital signs
- Call dr if v/s bad, also call rapid response team

BUN [Blood Urea Nitrogen]
- 8-30
- Elevated = B
- Check for dehydration

Hgb [Hemoglobin]
- 12-18
- 8-11 = B
- <8 = C
- Assess for bleeding (may transfuse <8)
- Call Dr

HCO3 (Bicarb)
- 22-26
- Abnormal = A

CO2
- 35-45
- In 50’s = C
  - Assess respiratory status
  - Do have patient do pursed lip breathing (like blowing out candle)
- In 60’s = D Respiratory failure
  - Assess respiratory status; if symptomatic call rapid response
  - Do pursed lip breathing
  - Prepare ventilate and intubate
  - Call DR
  - Cal respiratory therapist

Hct (Hematocrit)
- 36-54
- Abnormal = B; Assess for bleeding
PO2 (Oxygen level in blood; obtained from ABG)
- 78-100
- Low 70-77 =C Respiratory insufficiency
  - Assess respiratory status
  - Give oxygen
- Low < 60s =D Respiratory failure
  - Assess respiratory status
  - Give oxygen
  - Prepare intubate and ventilate
  - Call Dr
  - Call respiratory therapist

O2 Sat
- 93-100
- <93=C
  - Assess RR
  - Give O2

BNP
- Good indicator of CHF
- Normal <100
- Elevated=B

Sodium
- 135-145
- Abnormal =B (Hypo-Overload) (Hyoer-dehydration)
- If change in LOC=C
  - Fall risk * Implement precautions and call dr

WBCs
- WBCs 5,000-10,000
  - WBC < 5000 = C
- Absolute Neutrophil Count (ANC) >500
  - ANC <500 =C
- CD4 Count (T Cells)
  - Should be greater than 200
  - <200= AIDS
  - CD4 < 200 =C
- For top three implement (NP) reverse isolation precautions:
Neutropenic Precautions:
- Strict handwashing
- Shower BID with antimicrobial soap
- Avoid crowds
- Private room
- Limit number of staff entering the room
- Limit visitors to healthy adults
- No fresh flowers or potted plants
- Low bacteria diet
  - No raw fruits, veggies, salads
  - No undercooked meat
- Do not drink water that has been standing longer than 15 minutes
- Vital signs (temp) every 4 hours
- Check WBC (ANC) daily
- Avoid use of indwelling catheter
- Do not re-use cups...must wash in between use
- Use disposable plates, cups, straws, plastic knife, fork, spoon
- Dedicated items in room: stethoscope, BP cuff, Thermometer, Gloves

Terminology:
- **High WBC Count**
  - Leukocytosis
- **Low WBC Count**
  - Leukopenia
  - Neutropenia
  - Agranulocytosis
  - Immunosuppression
  - Bone Marrow Suppression

Platelets (Thrombocyte Clotting Cell)
- Wide range 150,000-400,000
  - <90,000 = C
    - Assess for bleeding
    - Bleeding precautions
    - Call Dr
  - <40,000 = D
    - could spontaneously hemorrhage to death
    - Assess for bleeding
Bleeding precautions
Prepare for transfusion
Call DR

- **Bleeding Precautions (Thrombocytopenic Protocol):**
  - No unnecessary venipuncture-injection or IV. Use small gauge
  - Handle patient gently; use drawsheet
  - Use electric razor
  - No toothbrush or flossing
  - No hard foods
  - Well fitting dentures (no rub)
  - Blow nose gently
  - No rectal temp, enema, suppository
  - No aspirin
  - No contact sports
  - No walking in bare feet
  - No tight clothes or shoes
  - Use stool softener. No straining
  - Notify MD of blood in urine, stool

**RBCs**
- 4-6
- **Abnormal = B** (check for bleeding)

**Summary/Analysis**
Know the 5 D’s which are the most dangerous
- **K+ > 6**
- pH 6 & < 6
- CO2 60’s and up
- pO2 60’s and down
- Plt < 40,000

Know what to do for the C’s
Don’t spend time memorizing the A&B’s
When should you call a Rapid Response Team? **When symptomatic! ASAP!**
Don’t call before assessing
**LACINECTOMY AND SPINAL CORD**

1. **Definition:**
   a. ‘Ectomy’ = ‘removal of’
   b. ‘Lamina’ = Vertebral spinous processes

2. **Reason for laminectomy:** to treat nerve root compression

3. **Signs & Symptoms of nerve root compression**
   a. Pain [usually distal extremities]
   b. Paresthesia [numbness and tingling]
   c. Paresis [muscle weakness]

4. **Locations:**
   a. Cervical (neck)
   b. Thoracic (upper back)
   c. Lumbar (lower back)

5. **Pre-op Cervical Laminectomy**
   a. Cervical spine innervates diaphragm and arms!
   b. Most important assessment:
      i. **Breathing**
      ii. **2nd:** how are arms functioning

6. **Pre-op Thoracic Laminectomy**
   a. Thoracic innervates abdomen and bowel functions
   b. Most important assessment:
      i. **Cough mechanism and bowel function**

7. **Pre-op Lumbar Laminectomy**
   a. Innervates bladder and legs
   b. Most important assessment:
      i. **Bladder retention and leg function**

8. **Post-Op Care**
   a. **#1 post op answer on NCLEX with spinal cord:** log roll (move spine in ONE piece)
   b. Specific “activity”/mobilization strategy post-op
      i. Do NOT dangle (sitting-worst position for spine/back)
      ii. Limit sitting for 30 minutes at a time
      iii. May walk, stand, or lay without restrictions
   c. **Post-Op Complications**
      i. **Cervical:** Watch for pneumonia (diaphragm and arm probs)
      ii. **Thoracic:** Watch for asirational pneumonia (abdominal-paralytic ileus [bowel])
      iii. **Lumbar:** Watch for urinary retention (bladder retention and lower extremity probs)
d. Laminectomy with fusion involves taking a bone graft from the iliac crest (most common site). (and fuse them)
   i. Of the two sites which site has the most:
      1. Pain? Hip
      2. Bleeding/drainage? Hip
      3. Risk for infection? 50/50 equal spine and hip
      4. Risk for injection? Spine site

Surgeons are using cadaver bone from bone banks. Why?
So don't have to do grafts, reducing rejection and infection rate.
Bone has decreased protein with antigens and wont be as easily rejected. Decrease pain in patients post op as well.

9. Discharge Teaching
   a. Temporary restrictions [normally always 6 weeks]
      i. Don’t sit for longer than 30 minutes
      ii. Lie flat & Log roll for 6 weeks
      iii. No driving for 6 weeks
      iv. Lifting restrictions: do not life more than 5lbs for 6 weeks
   b. Permanent restrictions [forever]
      i. Laminectomy patients will never be allowed to lift by bending at waist [must use knees]
      ii. Cervical laminectomy patients will never be allowed to life above head
      iii. No horseback riding, off-trail biking, jerky amusement park rides, etc
# Piaget’s Stages of Intellectual Development

<table>
<thead>
<tr>
<th>Age/Stage</th>
<th>Characteristics</th>
<th>Teaching Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: 0-2 years old</td>
<td>Totally present-oriented.</td>
<td><em>When</em> → As you do it</td>
</tr>
<tr>
<td>Stage: Sensorimotor</td>
<td>Only think about when they SENSE or are DOING right</td>
<td><em>What</em> → You are currently doing</td>
</tr>
<tr>
<td></td>
<td>now. Don’t understand past or future</td>
<td><em>How</em> → Verbally explained</td>
</tr>
<tr>
<td>Age: 3-6 years old</td>
<td>Fantasy oriented</td>
<td><em>When</em> → teach ahead of time (not too far, a hour or two; day of or morning before)</td>
</tr>
<tr>
<td>Stage: Pre-Operational</td>
<td>Illogical</td>
<td><em>What</em> → you are going to do</td>
</tr>
<tr>
<td></td>
<td>No rules</td>
<td><em>How</em> → using play [doll, story..]</td>
</tr>
<tr>
<td>Age: 7-11 years old</td>
<td>Rule-oriented</td>
<td><em>When</em> → can teach days ahead</td>
</tr>
<tr>
<td>Stage: Concrete Operations</td>
<td>Live &amp; Die by the rules!</td>
<td><em>What</em> → you are going to do + skills</td>
</tr>
<tr>
<td></td>
<td>Cannot abstract</td>
<td><em>How</em> → don’t use toys and play!</td>
</tr>
<tr>
<td></td>
<td>Only 1 way to do things</td>
<td>Internet</td>
</tr>
<tr>
<td></td>
<td>*Perfect age to teach skills</td>
<td>Use age appropriate reading and audio visual material</td>
</tr>
<tr>
<td>Age: 12-15 years old</td>
<td>Able to think abstractly</td>
<td><em>When</em> → like adult</td>
</tr>
<tr>
<td>Stage: Formal Operations</td>
<td>Understand cause-effect</td>
<td><em>What</em> → like adult</td>
</tr>
<tr>
<td></td>
<td>Adult when it comes to thinking</td>
<td><em>How</em> → like adult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Like any other med surg pt</td>
</tr>
</tbody>
</table>
Three principles to consider when choosing appropriate toys..

1. Is it **safe**
2. Is it **age appropriate**
3. Is it **feasible**

**Safety considerations:**
1. No small toys for children 4 and under
2. No metal boys where oxygen is in use
3. Beware of fomites [so if immunocompromised → no stuffed animals!]

**Age Appropriateness:**

1. **First year of life**
   a. 0-6 months (*sensorimotor*)
      1) **Best toy:** musical mobile
      2) **2nd Best toy:** Something large, soft (can’t be swallowed, no fomites)

   b. 6-9 months (*object permanence*)
      1) **Best toy:** cover/uncover toys [peek a boo]; jack in the box
      2) **2nd Best toy:** large, hard, plastic metal

   c. 9-12 months
      1) **Best toy:** verbal toy [toy which talks]
      2) **Purposeful activity with objects** [@ 9 mos first start doing purposeful things]

      Avoid answers with the following words in them for children 9 months and younger:
      • Build
      • Sort
      • Stack
      • Make
      • Construct

2. **Toddler (1-3 years)**
   a. **Best toy** push/pull toy [wagon]
   b. **Work on** Gross motor
   c. **Characterized by** parallel play [next to each other but not with]

3. **Preschoolers (3-6 years)**
   a. **Work on** fine motor [puzzles, chalk, crayons]
b. Work on balance [dance, skate]
c. Characterized by cooperative play
d. They Like to pretend

4. School age (7-11 years)
Characterized by the 3 C’s
   1. Collective [like to collect- ex. Beanie babies]
   2. Creative [blank paper, coloring pencils, legos—need to make things into other things]
   3. Competitive [winners & losers]

5. Adolescents (12-18 years)
Their “play” is peer group association (hang out in large groups, doing nothing)

Allow adolescents to be in each others’ rooms unless one of them is:
   1. Immunosuppressed
   2. Contagious
   3. Fresh post-op (12 hours)
MEDICATION HELPS & HINTS

1. Humulin 70/30

2. Drawing up Insulin
   1) Pressurize Normal
   2) Pressurize Regular
   3) Draw up Regular [clear before cloudy]
   4) Draw up Normal

3. Injections
4. Heparin & Coumadin

<table>
<thead>
<tr>
<th>HEPARIN</th>
<th>COUMADIN (WARFARIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Works right away (so start right away)</td>
<td>• Takes days (therefore start heparin too at same time)</td>
</tr>
<tr>
<td>• IV &amp; SQ</td>
<td>• Kicked in when INR 2-3</td>
</tr>
<tr>
<td>• 21 days [after that body makes own enzymes-dangerous]</td>
<td>• PO</td>
</tr>
<tr>
<td>○ therefore, notify MD if at it 2 weeks and ask if time to switch to Warfarin</td>
<td>• Antidote: Vitamin K</td>
</tr>
<tr>
<td>○ when start may be on bed rest 5-10 days until bodies enzymes adapt</td>
<td>• PT (INR)</td>
</tr>
<tr>
<td>• Antidote: protamine sulfate</td>
<td>• Cannot give in pregnancy</td>
</tr>
<tr>
<td>• PTT</td>
<td>○ Can cross placenta</td>
</tr>
<tr>
<td>• Can be given in pregnancy</td>
<td>○ Class X</td>
</tr>
<tr>
<td>○ Not safe however</td>
<td></td>
</tr>
<tr>
<td>○ Class C: use with caution</td>
<td></td>
</tr>
</tbody>
</table>

K+ sparing vs K+ wasting Diuretics
Baclofen (Lioresal)

- Muscle relaxants
- Can take with Oxycodone & cut dose ½

1) Causes drowsiness
2) Relaxes muscles (muscle weakness)
3) No alcohol
4) No driving
5) Cannot supervise kids under 12 alone
PSYCHIATRIC NURSE TEST-TAKING

PRINCIPLES

Phase Specificity
The best psych answers are those answers that are most appropriate to the phase of the nurse-patient therapeutic relationship that you are in.

If the question tells you the phase of the relationship, the phase will be the determinant of which answer is correct.

**The phases of the nurse-patient relationship:**

**The Pre-Interaction Phase**
**Purpose:** For the nurse to explore his/her own feelings. To prevent judgmental, intolerant reactions.
**Length:** Begins when you learn you are going to be caring for someone and ends when you meet them.
**Correct Answer(s):** “The nurse will explore her/his own feelings about…”

**The Introductory Phase**
**Purpose:** To establish trust and explore/assess
**Length:** Begins when you first meet the patient and ends when a mutually agreed-upon care plan is in place.
**Key Words:** These phrases are designed to hint to you that you are in the introductory phase:
- 1. “During the initial interview…”
- 2. “Upon admitting the patient..”
- 3. “On admission…”
- 4. “At your first few meeting with..”
- 5. “While assessing…”
- 6. “On the day of admission…”
- 7. “While formulating nursing diagnoses…”
**Correct answers:** Should be very tolerant, accepting, explorative, probing, “nosy.” Be warm and fuzzy.
The Working Phase (Therapeutic Phase)

**Purpose:** To implement the plan of care

**Length:** From the finished care plan until discharge

**Key Words:**
- 1. “During the therapeutic interview…”
- 2. “While implementing the care plan..”
- 3. “While working on the care plan goals…”
- 4. “During treatment sessions..”
- 5. “During therapy..”
- 6. “In your weekly session..”
- 7. “Three days after admission…”
- 8. “After improving..”

**Correct Answers:**
Should be very focused, directive, “tough.” In some ways these answers will seem stern and slightly unfriendly. Set limits. Enforce proper communication.

The Termination Phase

The only question asked here has been, “When does the termination phase begin?”

The answer “On admission”

**GIFT GIVING**

In psych, do not give something of value to the patient. Conversely, do not accept something of value from the patient

A gift is something of tangible or intangible value given from one person to another.

Gifts include: hugs, kisses, compliments, opinions, holding hands, placing an arm around, etc

**DO NOT** do these behaviors in psych. (May be appropriate in med-surg)

Difference between complimenting and observing progress
ADVICE-GIVING
DO NOT GIVE ADVICE. Let the patient formulate own solutions and alternatives.

Remember, giving advice and setting limits are not the same. The former is bad, the latter is good.

KEY WORDS TO AVOID:
1. “Suggest that..”
2. “Advise the patient to..”
3. “Tell the patient to..”
4. “If I were you, I would…”
5. “You should do..”
6. “You ought to..”
7. “You should NOT do..”
8. “Don’t do…”
9. “Recommend that…”

Any words with these phrases violate this principle and are WRONG. RULE THEM OUT!
Always say, “And what do you think you should do, Mr. Smith?”

GUARANTEE GIVING
DO NOT GIVE GUARANTEES IN PSYCH. You cannot predict the human mind of know another’s experience

Giving guarantees is okay in Med/Surg—if true

KEY WORDS:
1. If you…then…”
2. “You will improve if you..”
3. “We can…”

A guarantee violates trust when the promised results do not appear

Only things can guarantee: 1) meds will work 2) you are safe
IMMEDIACY
The best psych answers communicate to the patient that the nurse is willing to deal with the patient’s problem right then and right there

Key Phrases:
AVOID answers like these
1. “Refer patient to…”
2. ”Have you spoken to your…about this?”
3. “Why don’t you talk to your…about this?”

Avoid changing the subject—unless you are refocusing a patient who is avoiding the subject of therapeutic session

CONCRETENESS
The best psych answers are those answers that say exactly what they mean in a literal sense—word for word

KEY PHRASES: Avoid slang, figurative speech, sayings, proverbs, verses, poetry, stories, parables, allegories, neologisms.

Tie-Breakers

1. “Why” questions are not as good
2. Reflection is good.
3. Open-ended is better than closed-ended.
4. Answers with I, me, we, us in the subject are not good.
5. Shortest answers are the best
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PROTOCOL</th>
</tr>
</thead>
</table>
| DEPRESSION | • Most cases not psychotic  
            | • Suicide rates high    
            |   ◦ If even slightest indication   
            |   ◦ Psychomotor retardation: sit around and   
            |   ◦ Psychomotor retardation: sit around and   
            |   ◦ Must push these patients to do   
            |   ◦ Activities: in a group, but does not require   
            |   ◦ Activities: in a group, but does not require   
            |   ◦ Activities: in a group, but does not require   |
| SCHIZOPHRENIA | • High suicide rate  
                  | • Activities: group, requiring interaction-this brings pt to reality |
| BIPOLAR    | • Hypomania: minor; preceding; admit at this phase to prevent full mania. Pt hyperexaggerated but still functioning |
|           | • Mania: full blown; when stops ADLs and other responsibilities  
            |   ◦ Major problems: dehydration, malnutrition, lack of sleep  
<pre><code>        |   ◦ Actions: high cal finger foods, allow sleep/ naps whenever they want, gross motor activities alone |
</code></pre>
<table>
<thead>
<tr>
<th>ANXIETY DISORDER</th>
<th>Phobias: treatment: desensitization (gradual exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most common psych prob in U.S.</td>
<td>- 4 levels:</td>
</tr>
<tr>
<td></td>
<td>- 1. Talk about it</td>
</tr>
<tr>
<td></td>
<td>- 2. See pics of it</td>
</tr>
<tr>
<td></td>
<td>- 3. Be in environment with it</td>
</tr>
<tr>
<td></td>
<td>- 4. Actually experience it</td>
</tr>
<tr>
<td></td>
<td>- Patient has to be calm and ready to experience each next level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBSTANCE ABUSE</th>
<th>Denial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dependency</td>
</tr>
<tr>
<td></td>
<td>Manipulation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VIOLENT CLIENTS</th>
<th>Deal with violence as a team (of 5-1 person for each extremity)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In de-escalation process- only one person talks</td>
</tr>
<tr>
<td></td>
<td>Always give patient a chance to gain control of self before taking action</td>
</tr>
</tbody>
</table>
EMPATHY
The best psych answers are those answers that communicate to the patient that the nurse accepts that patients feelings as being valid, real, and worthy of action.

Key Phrases: A low-empathy answer is always wrong

Avoid Saying:
1. “Don’t worry…”
2. “Don’t feel…”
3. “You shouldn’t feel…”
4. “I would feel…”
5. “Anybody would feel…”
6. “Nobody would feel…”
7. “Most people would feel…”

Four Steps to Answering Empathy Questions
1. Recognize that it is an empathy question
   Empathy questions have a quote in the question, and each of the answers contains a quote.

2. Put yourself in the clients shoes. Say their words as if you really meant them.

3. Ask yourself, “If I said those words and really meant them, how would I be feeling right now?”

4. Choose the answer that reflects the feelings...not the answer that reflects their words.
PSYCHOTROPIC DRUGS

Note: All psych drugs cause a decrease in BP and weight change

1. Phenothiazines
   a. All end in –zine
   b. Very potent
   c. Immediate onset
   d. Ex. Thorazine, Compazine
   e. Actions:
      i. Does not cure disease. Reduces symptoms
      ii. Large doses: Psychotic symptoms (Hallucinations…)
      iii. Small doses: Nausea/Vomiting
      iv. Major: Tranquilizers
   f. Side Effects: (remember ABCDEFG…)
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
      v. Extra Pyramidal Syndrome (EPS)
      vi. Photosensitivity
      vii. AGranulocytosis (low WBC count-immunosuppression)
      viii. Teach patient to report sore throat and any S/S of infection to DR
   g. Nursing Care: treat side effects. Number one nursing diagnosis is safety.
   h. “Deconate” after name of drug means it is long acting (at least 2 weeks to month) IM form given to non-compliant patients

2. Tricyclic Antidepressants
   a. Antidepressant
   b. “mood elevators” to treat depression
   c. Ex. Elavil, Tofranil, Aventyl, Desyrel
   d. –pram, -trip
   e. Side Effects: (Elavil starts with E so this group goes through E)
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
      v. Euphoria
   f. Must take meds for 2-4 weeks before beneficial effects
3. Benzodiazepines
   a. Antianxiety meds (considered **minor tranquilizers**)
   b. Always have –pam, -lam in the name
   c. Prototype: Diazepam (Valium)
   d. **Indications:**
      i. Induction of anesthetic
      ii. Muscle relaxant
      iii. Alcohol withdrawal
      iv. Seizures—especially status epilepticus
      v. Facilitates mechanical ventilation
   e. Tranquilizers work quickly
      i. Must not take for more than **90 days/3 weeks-3 mos**
      ii. Keep on Valium until Elavil kicks in
   f. **Side Effects:**
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
   g. **#1 Nursing DX: Safety**

4. Monoamine Oxidase (MAO) Inhibitors
   a. Antidepressants
   b. Depression is thought to be caused by a deficiency of norepinephrine, dopamine, and serotonin in the brain. Monoamine oxidase is the enzyme responsible for breaking down norepinephrine, dopamine, and serotonin. MAO inhibitors prevent the breakdown of these neurotransmitters and thus restore more normal levels and decrease depression.
   c. 2-4 weeks
   d. Drug Names:
      i. Mar-plan
      ii. Nar-dil
      iii. Par-nate
   e. **Side Effects**
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
   f. **Interactions:** (Patient Teaching)
i. To prevent severe, acute, sometimes fatal hypertensive (stroke) crisis, the patient MUST avoid all foods containing TYRAMINE.

1. Foods containing TYRAMINE:
   a. Fruits and veggies (remember salad "BAR")
      i. AVOID:
         1. Bananas
         2. Avocados
         3. Raisins (any dried fruits)
   b. Grains: all okay except things made from active yeast
   c. Meats
      i. No organ meats: liver, kidney, tripe, heart, etc
      ii. No preserved meats: smoked, dried, cured, pickled, hot dogs
   d. Dairy
      i. No aged cheese
      ii. No yogurt
      iii. Cannot eat brick cheese
   e. Other
      i. No alcohol, elixirs, tinctures, caffeine, chocolate, licorice, soy sauce

ii. Drug Interactions:
   1. Teach patient not to take OTC meds unless they are prescribed
5. Lithium
   a. An electrolyte—notice –ium ending as in potassium, etc
   b. Used for treating BPD (manic depression)—it decreases mania
   c. Side Effects: (The 3 P’s)
      i. Peeing (Polyuria)
      ii. Pooping (Diarrhea)
      iii. Paresthesia (First sign of electrolyte imbalance)
   d. Toxic:
      i. Tremors, metallic taste, severe diarrhea or any other neuro
         signs besides paresthesia
      ii. #1 intervention: keep hydrated
      iii. If sweating, give electrolyte drink as well as fluids
   e. Note: Closely linked to sodium. Monitor sodium levels. Low sodium
      levels prolong lithium’s half-life, causing lithium toxicity. High sodium
      levels decrease the effectiveness of Lithium.
      i. Will only work as prescribed if Sodium normal!!

6. Prozac (Fluoxetine)
   a. Prozac is a SSRI (Antidepressant)
   b. Similar to Elavil (A tri-cyclic antidepressant)—same info
   c. Side Effects:
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
      v. Euphoria
   d. Prozac causes insomnia, so give before 12 noon
      i. If BID give at 6A & 12 N
   e. When changing the dose of Prozac for a adolescent or young adult
      watch for suicidal ideation
7. **Haldol (Haloperidol)**
   a. Also has deconate form [IM, long acting, given to pts who wont take pills
   b. Same info as Thorazine
   c. Very potent
   d. Immediate onset
   e. **Actions:**
      i. Does not cure disease. Reduces symptoms
      ii. *Large doses:* Psychotic symptoms (Hallucinations…
      iii. *Small doses:* Nausea/Vomiting
      iv. **Major:** Tranquilizers
   f. **Side Effects:** (remember ABCDEFG…)
      i. Anticholinergic Effects
      ii. Blurred vision and Bladder retention
      iii. Constipation
      iv. Drowsiness
      v. **Extra Pyramidal Syndrome (EPS)**
      vi. Photosensitivity
      vii. AGranulocytosis (low WBC count-immunosuppression)
      viii. Teach patient to report sore throat and any S/S of infection to DR
   g. **Nursing Care:** treat side effects. Number one nursing diagnosis is safety.
   h. **Elderly patients may develop Neuroleptic Malignant Syndrome (NMS), a potentially fatal hyperpyrexia (fever) with a temp of >104 F from overdose. Dose for elderly patient should be HALF of usual adult dose.
8. Clozaril (Clozapine)
a. Second generation atypical antipsychotic
b. Used to treat severe schizophrenia
c. **Advantage:** it does not have side effects A, B, C, D, E, or F (much less)
d. **Disadvantage:** it DOES have side effect: **Agranulocytosis** (worse than cancer drug in susceptible patients)
e. For first month need WBC counts weekly. If WBC LOW STOP!
f. Do not confuse with Klonopin (Clonazepam)

9. Zoloft (Sertraline)
a. Another SSRI like Prozac
b. S/E ABCDE
c. 2-4 weeks to work
d. Also causes insomnia but CAN be given in evenings
e. Watch for interaction with:
   i. *St. John’s wort-* **serotonin syndrome** *deadly*
      1. Sweating
      2. Apprehension → impending sense of doom
      3. Dizziness
      4. HEAD-ache
   ii. **Warfarin (Coumadin)**- watch for **bleeding** (may need to lower warfarin dose)
      1. When take Zoloft- warfarin and INR stays UP