NCLEX- RN

REVIEW NOTES 2018

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Few Tips and Mnemonics Included

More reminders/notes

Real talk! triplee.rn@yahoo.com

Hello! fellow nurses! NCLEX is expensive! But our hard work will pay off soon, success is at hand for those who strive. I made a promise to myself to do this once I pass. I hope I can help you with the content. If you are a 1st time taker I hope you can PASS right away with a little help from me.

For repeat test takers do not despair, there is hope. You are not alone. I have been through a lot of hurdles from start to finish. We must control our thought as it is so powerful. They said a real warrior never quit, winners never quit which is true! we don't fail in life if we keep on trying, you will only fail, for real once you QUIT. Fighting! We can do this!

Oh! well allow me to share my story. I graduated 2010. It's been a while before I decided to take the exam. I am not one of the lucky ones who got it right away. I failed twice! I must pick myself up and shake it off. So, I'd say I know how it feels. It's like you have wasted a lot__money, time, effort, etc. It's okay not to be okay when you do but it's never okay to give up. Life teaches us a lesson and here we are taking God's exam every day as we explore in this world. Experience is the best teacher. The world is so wide and life if too short. We must learn from our mistakes or else we will fail over and over. Chances are thousands, let us use it wisely.

We must prepare in a different way this time. Make a commitment. Have enough time to prepare. Apply nursing process. Assess our strategies. Diagnose, time management. Plan for the next battle. Intervene, study with Comprehension, Practice! Practice! Don't rush, tendency is that we overlook the minute details which is very important (Avoid, Best etc.) And Evaluate yourself. If information is overloaded! STOP! Do the things that inspire you! then Go back fresh, to study.

If you don't get the scores that you're looking for while you study, shake it off and move on, it only means we must keep studying and practice more. If you feel like you can absorb better solo or within a group session/classes, then do it! Suit yourself consider the setting! whatever you think will help you out and make you at ease. Don't assume that you don't know anything at all. you got this! you just need to refresh your memory.

I am not super techie so pardon me. so as with my grammar...lol. This will not replace any books. This is merely for review. Tried my best to compile this and add pics so it's easier for you to create a mental imagery during the actual exam. If you dislike the color, feel free to change, if you want to add notes please do so. I do not own this, it's an accumulation of notes, strategies and techniques that I've got while I study from different sources, some are my own...you can use it if you think it is useful or you can create your own mnemonic. It's a bit colorful cause I am not the kind of person that enjoys reading that much (I'm like a kid, still young at heart) so I must make it fun for my eyes to read and I use black background so it's not too bright. You may change it whatever your preference is.

None of this is a guarantee, everything will still be up to you! This is not about spoon feeding, this is merely for review purposes.

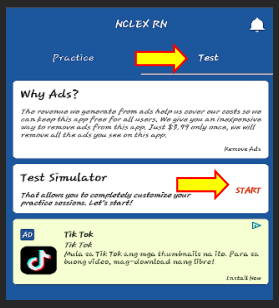
I'd really hope I will be able to help you reach your goal. And we will together continue to serve and help people live healthier lives.

Do your best, God will do the rest! The strongest weapon in every battle is PRAYER!

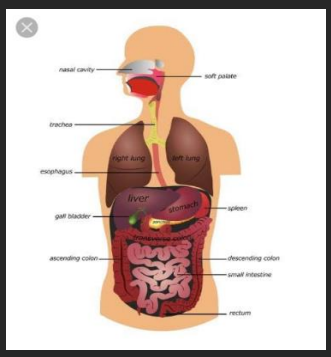
"Whatever you do, work at it with all your heart, as working for the Lord, not for human masters, since you know that you will receive an inheritance from the Lord as a reward. It is the Lord Christ you are serving." (Colossians 3:23-24).

TipS

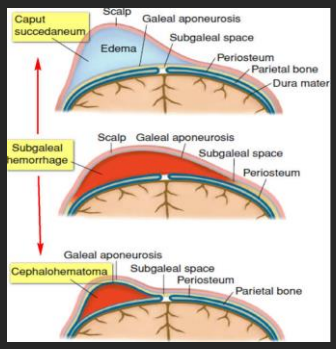
If you may install this app and as much as possible answer at least 25 questions each day, make it a habit, no need to unlock or purchase and the content is almost the same as this app or whatever Q&A app works for you… Practice looking for hints/cues, improve your strategies, techniques and hone your skills. Then for a week or two practice Q&A for 265, timed! Increase your endurance



*Just familiarize the anatomy ;)
We can use this if we dissect the questions ☺.
Unfamiliar question? don't rush make an educated guess, I know you can, I believe in you!
every Q & A count.

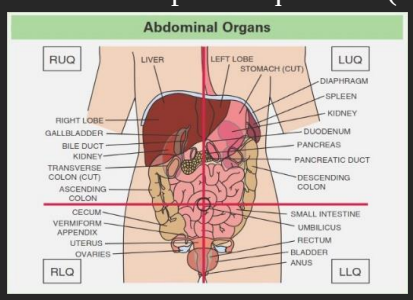


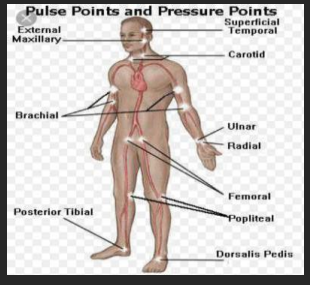
*What I meant about dissecting ;) "-ectomy" – so it is talking about removal of something.

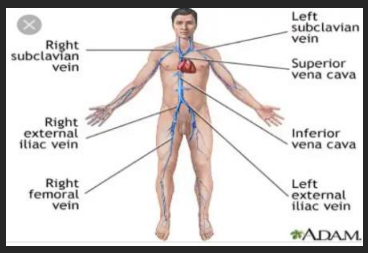


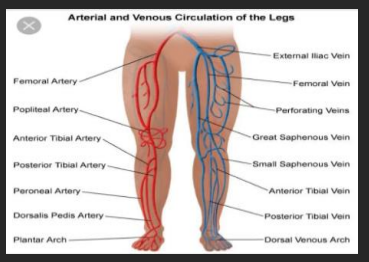
*Make something like this:
Caput succedaneum – it succeeds - crosses the suture
Cephalohematoma – do not cross
Nursing is an art! So be creative

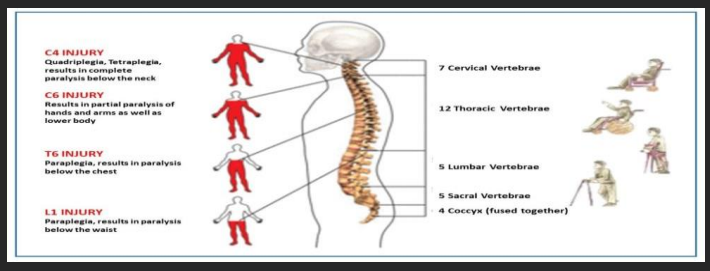
*If the question is talking about RUQ then it is talking about the liver, so just familiarize what organs are in that specific quadrant (location)? Functions?











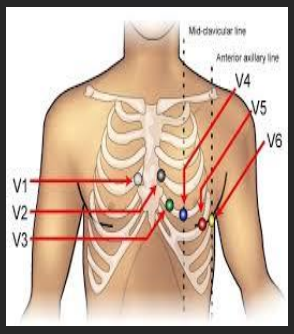
*If the question is talking about an injury
Think about what site is affected?__(cervical)
Possible effect?__ (difficulty breathing, complete paralysis below the neck)

*If you are confused about the effects of the drug (only if you do not know, use critical thinking), ask yourself

-is it an excitatory drug? Then S/E__SNS, A/E__PNS
-is it an inhibitory drug? Then S/E__PNS, A/E__SNS
Ex: Epinephrine (excitatory)

*Remind yourself that NCLEX is book base/nursing theory, it's not about our personal experience.

* What if? STOP! Focus on what the question is asking, be alert with the setting. In the exam you have everything you need. staff, materials, etc. It is a perfect world. Your client in the only person presented in the question. Stop overthinking everything.



*Try to create a mental image of the anatomy, diseases, procedures, terminology and theory. This will also help you with the hot spot (?) Skim and scan, then go back with the Q & A to improve your training as a spy ;)

*If the question does not have data in it, then answer will most probably be about assessment, if it's present then move on_ it probably requires intervention. ANALYZE

*Don't expect to get everything right, to know all. The harder it gets then the closer you are.

*Don't just choose answer choices based on a hunch/feeling, apply your nursing knowledge instead, recall the principles. NCLEX is not merely about identification, so memorizing might not work…Please ANALYZE. Let us use our Critical thinking skills.

*Familiarize yourself with the computer adaptive test
*Visualize yourself as you read through the Q & A
*Umbrella question_ answer that covers all of the others
*Consider all choices, do not predict, then use the process of Elimination to narrow down your options.

*Identify if it is a negative/positive question_ write (-) / (+)

Tricky words_ALERT_*avoid, further teaching, 1st (so it means you can still do the other options, but which one is 1st among the choices) *best* (all are correct, but you must select the highest)

*Familiarize proper delegation

*Decide which patient is sickest/healthiest
Answers always have age, gender, dx and modifying phrase (most important)

*PRIO – will the result be worse?
Unstable vs Stable
Unexpected vs Expected
Acute vs Chronic
Physiological vs Psychological
Maslow's hierarchy
ABC
Nursing process
Safety

*Select the time of the day that you test your best, wherein you can absorb better.

*For SATA_answer it like a true or false in each choice. Verify if negative/positive query.

*Don't expect to complete at 75, expect for 265. So you won't despair if it won't stop at 75 you are still in the game, and to just answer the question to get through the rest of the exam.

*If there are topics that confuses you JOT it down and read it over and over REPETITION with COMPREHENSION is the key (have a pocket notebook). Again, Scan and Skim.

*During the exam they will provide you with an erasable board and pen. Make use of it. This is very important. It is provided for a reason. Imagine of it as if you are asking a friend for clarification. Think of it as me ☺.
what are you going to write__ex. (-) Needs further teaching_Cushing? So you will now look for the Negative query.

*Don't be lazy during the exam. Think hard. Remember this is what you are preparing for. Your 6 hour-time frame will decide. So, give it your best shot!

*During the exam if you become fatigued take a break and a snack. Bring a dark chocolate whatever helps you.

*A day before the exam, pamper yourself. Prepare for your big day! Feel fresh and comfy.
*Write your name with RN in the end. Claim it!!!

Jeremiah 29:11
For I know the plans I have for you," declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future.

FUNDAMENTALS OF NURSING

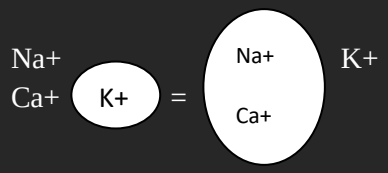
1. **Fluids and Electrolytes**
   - ↑ Risk for Imbalances:
     - Infants - 80%
     - Male – 60 %
     - Female – 50 % *(more body fats)
     - Elderly – 40 %

     2/3 – ICF

     1/3- ECF – intravascular & interstitial tissues

2. **Cellular Transport**
   - **Passive –** No energy
     - **Osmosis –** Movement of H2O from low to high concentration
     - **Diffusion –*(diffuse)** Movement of solutes from high to low concentration.
   - **Active –** Uses energy (ATP)
     - **Na+** and **K+** pump

       → Impulses → contraction

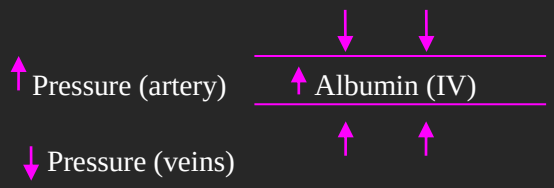


Repolarization = Relaxation

Depolarization Contraction

   - **Pressure**
     - **Oncotic –** pulling force, prevent leakage of fluids that causes edema or ascites

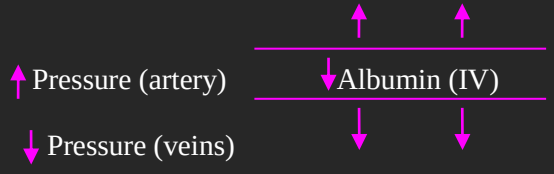
       Albumin- balancing act



Ex: NephrOtic Syndrome damage to the glomerulus (filter)

Nrsg Intervention: give **IV Albumin**

     - **Hydrostatic –** pushing force, to prevent hypertension.



TONICITY OF IV SOLUTIONS

Tonic – concentration of solution

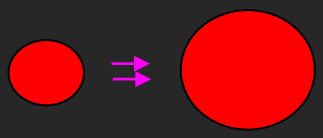
Tonicity Opposite with the Prefix

1. **Hypotonic -** ↓ tonicity of the cell
   - can lead to cell lyses
   - produces cellular swelling
   - osmosis, movement of water into the cell
   - for patients cause: DKA, hyperosmolar hyperglycemia
   - **Avoid:** patient with ↑ ICP, burns, trauma
   - ex. Dehydration, Fluid Vol. Deficit
   - ex. 0. 33 % NaCl *(almost all <1/with point)

     0. 45 % NSS

     0. 22 % Saline

     D5W (inside the cell)

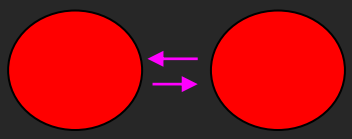


2. **Isotonic –** equal, no cellular change
   - fluid maintenance, replacement for patients with burn, dehydration due to N/V
   - ex. 5% dextrose in 0.225 Saline

     PNSS

     PLR (burn)

     D5W (outside isotonic)

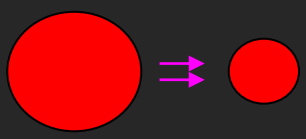


3. **Hypertonic -** ↓ tonicity of the cell
   - shrinking of the cell, movement of water out of the cell
   - ↑ ICF
   - usually central line, mostly in ICU
   - **WOF: pulmonary edema**
   - ↑ ICP – give mannitol
   - ex. D5050 * (not less than 1/ no point)

     D5LR - hyperglycemia

     3 % Saline

     5 % Saline

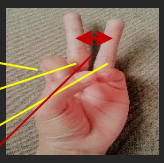


FLUID IMBALANCE

1. Fluid Volume Deficit (FVD)

S/Sx: Neonate: sunken fontanels and eyeballs

- flat neck veins
- dry poor skin turgor
- constipation
- oliguria
- weight loss
- ex. shock (isotonic)
- **V/S**: Hypotension ↓ BP
  - Tachycardia ↑ PR
  - Tachypnea ↑ RR
  - Pulse pressure – Narrow - 90/60
    *(**N- 40**); (systolic – diastolic = Pulse pressure)
  - HCT - ↑ concentrated
    *(**N : M – 42 - 52 %, F – 35 - 47 %**)
  - CVP – measure fluid balance
  - CVP - ↓
    *(**N – 5 - 10 cm H2O / 3 – 8 mmHg**)



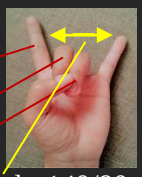
H2O = CVP
HCT Opposite with H2O

Mgt:

- IVF
- I&O replacement & monitoring

2. Fluid Volume Excess (FVE)

- periorbital or facial edema
- distended jugular neck veins
- CHF
- Ex. ↑ ICP ↓ LOC
- **V/S**: Hypertension ↑ BP
  - Bradycardia ↓ PR
  - Bradypnea ↓ RR
  - Pulse pressure – widened - 140/90
  - HCT - ↓ dilution
    CVP – ↑



- **Lungs – Left** ❤ **Systemic – Right** ❤
  - pulmonary edema
  - crackles / rales
  - DOB
  - coughing
  - edema generalized
  - ascites
  - weight gain

Mgt.

3
Diuretics
Dialysis
Digoxin

- replace albumin (IV)

ELECTROLYTE IMBALANCE

1. SODIUM (Na+) – N 135 – 145 mEq/L

➢ **HYPONATREMIA**

- **cause**: SIADH
  ↓
  ↑ ADH
  ↓
  Fluid retention
  ↓
  Weight gain

Serum	Urine
↓ Hemodilution	↓ Oliguria
↓ Dilutional hyponatremia	↑ USG
↓ HCT	N – 1.010-1.030

USG opposite with Urine Output

Mgt: Demeclocycline (Declomycin)

- **cause**: ↓ Na
  ↓
  ↓ H2O
  ↓
  S/Sx FVD

Mgt: IVF

➢ **HYPERNATREMIA**

- **Cause**: DI
  ↓
  ↓ ADH
  ↓
  Fluid loss
  ↓
  Weight loss

r/t ADH
hypOnatremia_Overload
hypErnatremia_dEhydration

Serum	Urine
↓ Hemoconcentration	↓ Polyuria
↑ HCT	Diluted
Hypernatremia	↓ USG

Mgt: Vasopressin
Desmopressin

Cause: ↑ Na
↓
↑ H2O
↓
S/Sx FVE

Mgt: **D**iuretics
Digoxin
Albumin

2. **POTASSIUM** (K+) ↓K+ = ↓impulses
   - Directly proportional impulses

   N – 3.5-5.1 mEq/L

➢ **HYPOKALEMIA** = ↓K+= ↓impulses
   - **CNS** – lethargy
   - **HEART** – T wave inversion/ depression, **U wave***
   - **GIT** – constipation
   - **MUSCLES** – **Early** – cramping
     Late – weakness

Mgt: replacement K+; oral **kalium durule**
IVF KCl

Kalemias is equal to the prefix except heart rate and urine output

   - No IV push always incorporate
   - Never add more than 40 mEq/ L
   - Never infuse in more than 10 mEq/L
   - **K+ rich diet**

Anything r/t urination = ↓K+

Potatoes (baked with skin)
Apricot (dried)
Banana
Orange Kiwi
Watermelon Cantaloupe
Strawberries

   - **Avoid digoxin** because it will lead to digitalis toxicity*
   - **Avoid K+ wasting**
     Bumetanide (Bumex)
     Furosemide (Lasix) – loop diuretic
     Hydrochlorothiazide
     Mannitol – osmotic diuretic

➢ **HYPERKALEMIA**= ↑K+= ↑impulses
   - **CNS** – seizures
   - **HEART** – tall peak T wave
   - **GIT** – diarrhea
   - **MUSCLES: Early**: spasm
     Late: weakness

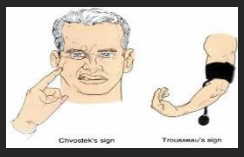
Mgt: (Sodium polystyrene) Kayexalate – permanent to ↓K+
   - Oral (powder, dilute in H2O), enema
   - **IV GI solution** (D5050 with insulin) – temporary solution/emergency cases

Avoid K+ sparing diuretics
Spironolactone
Amiloride
Triamterene

↓K+ foods
Apples
Blueberries
Blackberries
Cherries
Grapefruit
Peaches
Pineapple

3. **CALCIUM** – 4.5 – 5.5 mEq/L
   8.6 – 10 mg/ dL
   - opposite with impulses

➢ **HYPOCALCEMIA** = ↓Ca+ = ↑ impulses
   - Tetany
   - (+) **Chvostek sign** – facial muscle twitching
   - (+) **Trousseau sign** – carpal spasm
   - Prolonged ST/QT interval



WOF: laryngospasm (airway problem)
Mgt: diet – milk /dairy products
   - **IV calcium gluconate**
   - Oral **calcium chloride/ carbonate**

➢ **HYPERCALCEMIA**= ↑Ca+ = ↓impulses
   - **Bones** (brittle)- ↓Ca+ cause it's in the blood
   - **Stones** – renal calculi
   - **Moans** – muscle weakness
   - **Groans** - ↓ GIT – constipation

Alphabetical order
_Parathyroid – bone to blood

Mgt: **Calcitonin** (movement of Ca+ blood→bones)
Fosamax (bone mineralization)
Diuretics — excess calcium excretion
Dialysis

   - Shortened ST & widened T wave

4. **PHOSPHORUS** – 2.7- 4.5 mg/dL

➢ **HYPOPHOSPHATEMIA**
↓**Ph** – malnutrition / starvation / antacids
   - alcoholism

P inversely proportional - Ca+

➢ **HYPERPHOSPHATEMIA**
↑**Ph** – tumor lysis syndrome
   - renal insufficiency

5. **MAGNESIUM** ↓Mg+ = ↑ impulses
   - opposite impulses
   - N – 1.5 – 2.5 mEq/L

- **HYPOMAGNESEMIA = ↑ impulses**
  - **CNS:** Brain – seizure
    Spinal cord – hyperreflexia + 4 (N +2)
  - **MUSCLES:** Spasm
    Tetany
    Cramps
  - **HEART: V tach***
    ↓
    Polymorphic VT (**Torsade's de Pointes**)
  - Tall T waves and depressed ST

Mgt: MgSO4 IV
Mg Salts p.o.

- **HYPERMAGNESEMIA = ↓ impulses**
  - **D**TR (-) or absent
  - **R**espiratory – ↓
  - **O**liguria
  - b**P** decrease

Mgt: Calcium gluconate (**antidote** Mg toxicity)
Diuretics
Dialysis
O2 (mechanical ventilator)

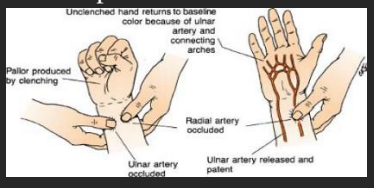
- Prolonged PR
- Widened QRS complexes

Add note : N Cholesterol 200 mg/dL

ABG (ARTERIAL BLOOD GASSES)

✓ Patency radial and ulnar artery -**Allen's Test**

a. Occlude both radial and ulnar artery
b. Close and open hands 3 times
c. Release ulnar artery
d. Access perfusion hands



PRACTICE DRILLS: ABG INTERPRETATION

Step 1: pH ↓ Acidosis
↑ Alkalosis

Step 2:
Respiratory
Opposite
Metabolic
Equal

Step 3: Compensation???
If Normal pH: **Fully compensated**
If abnormal pCO2 or HCO3 but pH is abn – **Partially**
If Normal pCO2 or HCO3: **Uncompensated**

Compensation:
Respiratory Acidosis & Alkalosis
- pH is normal (compensated)
- HCO3 is abn (partial compensation)
- HCO3 is normal (uncompensated)

Metabolic Acidosis & Alkalosis
- pH is normal (compensated)
- paCO2 is abn (partial compensation)
- paCO2 is normal (uncompensated)

Normal Values:

pH	7.35 – 7.45
PaCO2	35 – 45 mmHg
HCO3	22 – 26 mEq/ L
paO2	80 – 100 mmHg
SaO2	95 -100 %

PRIO
pH < 6
PO2 < 60
PCO2 > 60

Ph 7.5 ↑ PaCO2 32 ↓ HCO3 26 **N**	Uncompensated Respiratory Alkalosis
Ph 7.37 **N** PaCO2 32 ↓ HCO3 19 ↓	Fully compensated Metabolic Acidosis
Ph 7.33↓ PaCO2 46↑ HCO3 30 ↑	Partially compensated Respiratory Acidosis

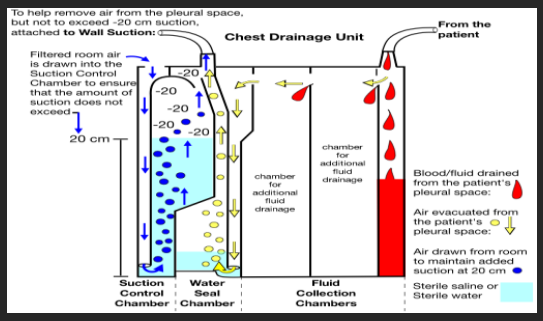
INTERPRETING ABG

	Respiratory CO2 = acidic	**Metabolic** HCO3 = alkalosis
Acidosis – pH ↓ As the pH goes…so as my pt Except K+	↑ PCO2 ↑ K+ Ex. COPD, Obstruction r/t hypoventilation Asthma- **late sign** **PRIO:** MS, MG, GBS, ALS **Comp**. Respi. Paralysis **Mgt:** Deep breathing Exercise Purse lip breathing (inhale nose, exhale mouth)	↓ HCO3 ↑ K+ Clients with ↑ lactic acid DKA Renal failure MI Burns Diarrhea **Mgt: NaHCO3 IV**
Alkalosis – pH ↑	↓ PCO2 ↓ K+ Hyperventilation Asthma – **initial sign** Anxiety, Panic attack **Mgt:** Brown bag Method Partial rebreather mask (reservoir mask)	↑ HCO3 ↓ K+ Vomiting Continuous NGT drain/ suction/lavage Antacid overdose **Mgt: Diamox** **Aluminum Chloride**

CHEST DRAINAGE SYSTEM

- **Dislodged (Patient)**
  - ✓ Cover with sterile vaselinized gauge/petroleum (?best) ; (?1st) cover with gloved hand
- **Disconnected (tubing)**
  - ✓ Immerse tip into bottle of sterile H2O (?best); (?1st) clamp
- **CTT removal** – exhale and bear down/valsalva

be Alert, stay FOCUS, look for the cues/hint



Drain/Collection	H2O seal	Suction chamber
Normal: < 100 ml/hr Color: serous/clear, Serous sanguinous **WOF :** purely blood (bleeding) bright red/ sanguinous ? Insertion Apical – Air Basilar – Blood	**Normal:** 2 cm H2O Gentle intermittent bubbling/ fluctuation. Constant/continous - leak No bubbling - 1st 24 hours-kink or obstruction - after 24 hours Lung reexpansion	**Normal:** Continous / gentle constant bubbling due to (-) pressure **WOF:** vigorous

OVERVIEW OF INFECTION PRECAUTION

Tier 1. Standard

-Universal handwashing
- personal protective equipment (gowns, gloves, mask, goggles)

HIV and hepatitis

Infectious mononucleosis
*(kissing's disease)

Tier 2. Trasmission Based

Airborne – private room with negative pressure
- ✓ N95 mask, Hepa filter mask, high efficiency

Measles (Rubeola)

TB

Varicella (chicken pox)

HZ Herpes zoster (shingles)

-initial airborne, if with lession contact

1 "L" 1 word

Mumps, Rubella
TB – transmission- droplet, airborne precaution

Contact- gloves and gowns

Cholera

Clostridium difficile – diarrrheal dse

Rotavirus; * **RSV** (Respi. Syncytial Virus)

Impetigo

Bronchiolitis → causative agent

MRSA (Methicillin resistant staphylococcus aureus)

VRE (Vancomycin resistant enterococcus)

Hepatitis **B/C/D/F/G** (**blood-consonant**)

Droplet –simple surgical mask, 3 ft distance

Diptheria

Rubella (german measles)

2 "L" 2 words

Oral pharyngitis

Pertussis, **P**neumonia

Erythema Infectiosum (5th dse), Epiglotitis

Tonsilitis

Influenza (flu)

Scarlet fever

Meningitis /mumps (parotitis)

Enteric- fecal oral route (gloves and gown)

Shigella dysenteriae

Salmonella

Hepatitis **A/E** (vowels)

SAFE DONNING AND REMOVAL OF PPE

Donning PPE	Removing PPE
1. **Go**wn	1. **Glo**ves
2. **Ma**sk	2. **Go**ggles
3. **Go**ggles	3. **Go**wn
4. **Glo**ves	4. **Ma**sk

MACRONUTRIENTS

HIGH CARBS	LOW CARBS
✓↑ calorie ✓↑ energy ✓ for patients with marasmus, hepatitis, kidney dse	✓↓ glucose ✓ CO2 production **Limit** – DM , COPD Dumping syndrome *(↓ fiber and ↓Carb High protein)

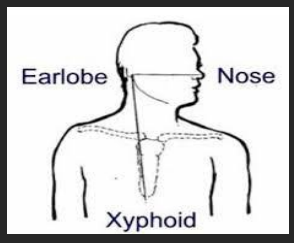
HIGH CHON	LOW CHON
- ↑ albumin ✓ wound healing/repair ✓ pt post op; burn ✓ COPD-source of energy ✓ Nephrotic syndrome - lean CHON (chicken, fish) no red meats, beef	- ↓ urea –kidney - ↓ammonia-liver biproducts - kidney failure - liver cirrhosis - hepatic encephalopathy → ↓LOC Nephritic syndrome r/t acute glomerulonephritis (**Azotemia**- ↑BUN)
HIGH FAT	**LOW FAT**
- insulation - heat production - absorption of **VIT ADEK**	- bile related - liver cirrhosis - peritonitis - hepatic encephalopathy - cholelithiasis - cholecystitis - post cholecystectomy - CAD, MI

ENTERAL AND PARENTERAL NUTRITION

NGT INSERTION

✓ High fowlers

1. Assess nasal patency
2. Lubricate the tip of tube (KY jelly)
3. Nasopharynx – instruct to tilt the head back
4. Oropharynx- instruct to flex the neck then shallow



*Gag reflex – stop temporarily
*Respiratory distress- stop and remove and wait till distress resolve

Methods:

✓ CXR – best method

✓ Gastric content aspirate

✓ Gastric pH- acidic 1-5; if ph > 6 = lungs

✓ Insufflation

✓ Least commonly done – immerse the tip of the tube in the glass of H2O

✓ **Normal**- No bubbling

✓ With bubbling- lungs

NGT FEEDING

✓ Semi-fowlers

1. Assess bowel sounds
2. Placement - pH
3. Residual volume **Normal** < 100 ml/hr
   Coffee colored – bleeding ***Report**
4. Flush
5. Feed
6. Flush

*during feeding: cramps- stop temporarily

Bland diet	Balanced diet	Brat diet
- for pts with upper GI dses – GERD, peptic ulcer *(GI irritants) **NO** **C**offee **A**lcohol **S**picy **H**ot	- for pts with DM Obese	**B**anana **R**ice **A**pple **T**ea/Toast ✓ boiled egg ✓ ground meats X fried X milk Limit fat **Low residue** - Lower GI disorders - Diarrheal dses CROHNS Diverticulitis
Gluten free diet	**Purine free diet**	**Tyramine free diet**
-for pts with celiac dse **NO** **B**arley **R**ye, flour **O**ats **W**heats ✓ rice ✓ corn	-for pts gout uric acid stones **NO** **A**nchovies **L**entils **L**egumes **B**eers/beans Nuts **O**rgan meats **Y**east **S**prouts	-MAOI's diet of choice for patients with depression lead to **hypertensive crisis** -levodopa -migraine **AVOID** aged, processed, fermented, pickled, smoked, cheese. ALL cheese **except** cottage cheese

NGT SUCTION

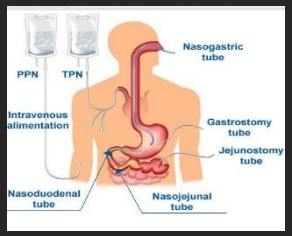
✓ Semi-fowlers

WOF: ↓ K+, metabolic alkalosis

TPN

- subclavian vein (central vein)
- jugular vein
- maintain sterile technique
- compatible substances

Glucose
Enzymes
Lipids
Amino acids



WOF 1. Priority – **Infection** – sterile!!!
2. Hyperglycemia
3. Air embolism

BASIC LABORATORY PROCEDURE

➢ **RADIOGRAPHIC**

1. **Barium (GIT)**
   A. **Swallow** (upper GI series)
      Pre-pro = high fowlers, NPO 6-8 hours
      Post-pro = S/E: constipation chalk like stools

Mgt: ↑OFI

B. **Enema** (lower GI series)

Pre-pro = Left Sim's, NPO 6-8 hours

Post-pro = S/E: constipation chalk like stools

Mgt: ↑OFI

2. **Iodine (GUT)**

-IVP or intravenous pyelogram

Pre-pro = supine or flat on bed, NPO 6 - 8 hours, Ask allergy shellfish

Post-pro = S/E warm and have salty taste

Mgt: ↑OFI

Complication: for BOTH

WOF Anaphylaxis can cause airway problem

➢ ENDOSCOPY

GIT

1. **EGD or esophagogastroduodenoscopy** (upper)

Pre-pro = left lateral, NPO 6-8 hours,

Pre-meds - **lidocaine spray**

* (↓gag, atropine)

Post-pro = assess for gag reflex

Bowel sounds

Flatus

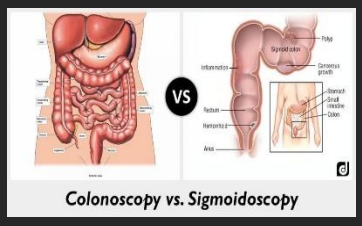
WOF: perforation

2. **Colonoscopy** (lower)

Pre-pro = clear liquid foods only, stop clear liquids 4 hours prior, empty the bowel, left lateral.

Post-pro = Bowel sounds & movement

Flatus, contact provider-feeling bloated, N/V, fever



Colonoscopy vs. Sigmoidoscopy

WOF: perforation, problems passing urine, abd becomes tender and hard, stools are black/blood, vomit with blood/bile

3. **Sigmoidoscopy** (lower) – usually enema 1 hour prior to the procedure

Pre-pro empty the bowel, left lateral.

NPO 6-8 hours

Post-pro = same Colonoscopy

LUNGS

1. **Bronchoscopy**

Pre-pro = supine, NPO 6-8 hours.

Pre-meds - **lidocaine spray**

Post-pro = same EGD

MEDICAL SURGICAL POSITIONS

Procedure	Position	
	During	After
Thoracentesis	Sit, leaning forward	Unaffected side - to promote lung expansion (lungs) -to prevent bleeding (eyes)
Lobectomy	Expose Site	
Segmentectomy		
Eye cataract surgery		
Pneumonectomy		Affected side **Comp: tracheal deviation**
Lumbar puncture	Side, Knee Chest	Supine -to prevent CSF leakage
Lower spinal surgery	Prone	
Cervical spinal surgery		
Infratentorial surgery (nape) (**craniotomy**)		
Supratentorial surgery (hairline) (**craniotomy**)	Semi-fowler	Semi-fowler- to prevent ↑ICP
Liver biopsy (RUQ)	Left side/supine	Right side- to prevent bleeding
Gastrectomy	Supine	Low to semi fowlers- to relax abd tension
Cardiac catheterization		Supine with the affected leg straight 4°-6° to prevent clot formation/ bleeding
Amputation	Expose site	1st 24°-elevate to prevent edema **After 24°**-prone to prevent contractures to easily attached prosthesis

Condition	Position
Arterial disorders – too low perfusion	Dependent position (low)
Venous disorders- too high perfusion	Elevate
Increased ICP	Semi-fowlers position - head neutral
COPD	High fowlers position

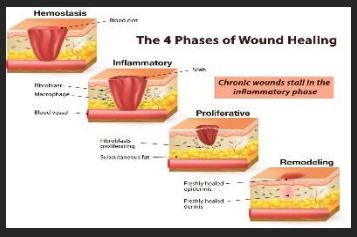
WOUND HEALING & CARE

-diet: ↑Protein and Vit. C

NATURAL PROCESS:

1. Hemostasis

- Control bleeding
- macrophages
- clots
- platelets

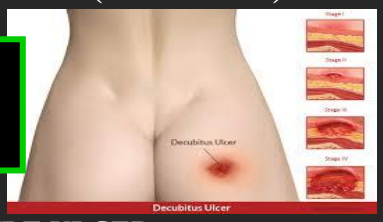


2. Inflammation
- bradykinins, prostaglandins, histamines
- 1st 3 days
- vasodilation
- redness
- swelling
- pain

3. Proliferation
- 3rd day onwards
-granulation
-contractions
-epithelialization

4. Maturation/Remodeling
- collagen synthesis (scar formation)

1st_red/no vesicles
2nd_red/shiny/with vesicles/wet
3rd_white/hard/dry



DECUBITUS/PRESSURE ULCER

- Turn every 2 hours

Skin Disturbances

Skin	Characteristic	Dressing
I	Intact, redness	Tegaderm
II	Opening to the dermis (most painful-nerve ending)	Hydrogel
III	Subcutaneous (not painful)	Hydrocolloid (duoderm)
IV	Bones & muscles cavity	Sterile foam & Sterile dressing

Dehiscence- suture separation
Evisceration- popping out of internal organ
BOTH: Splint or support if pt cough
- ✓ Initial: low → semi fowlers (1st)
- ✓ Cover with sterile moistened gauze (best)
- ✓ Notify Dr, V/S

GERIATRIC NURSING

Dev't Task: Ego Integrity VS Despair 65 yo

A. **Cognitive decline**: Alzheimer's dse
Safety-long term care facility-name and picture
-hospital ward – room nearest to the station

B. ↓ **Visual acuity**: Presbyopia (farsightedness)
- Notify the Dr to prescribe reading glasses/ convex lenses

C. ↓ **Hearing** – Presbycusis
- ✓ Do not shout/ ↑pitched tone; normal tone and stand in front of the patient

D. ↑ **Lung residual volume**- weakness of diaphragm – Risk for pulmonary disorders ; flu; pneumonia and influenza

E. ↑ **Clotting** – MI/ CAD/ CVA

F. **Color difficult to be distinguised**: Purple
- ✓ Easiest - RED

G. **Bone demineralization** – osteoporosis → ↓estrogen → Ca+ rich diet; ↑Ca Supplement → Fosamax

H. **Gastric enzymes**: indigestion → constipation → OFI/ fiber ; do not abuse laxative lead to constipation

I. **Bladder capacity**: shrink → Incontinence → Kegel's exercise

J. **GFR**: drug toxicity

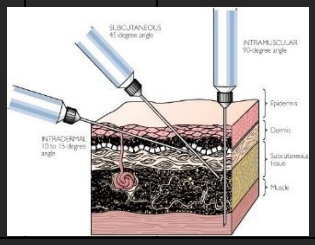
K. ↓ **No taste buds** – dulled tatse → tendency → ↑Salt → hypertention

MEDICATIONS AND CALCULATIONS

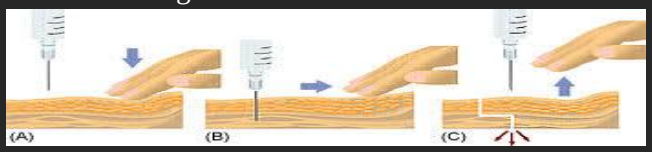
PARENTERAL MEDICATIONS

Injection Route	Best Site	Angle	Gauge (needle)
Intradermal (ID)	Forearm	10°-15° max	25-26
Subcutaneous (SQ)	Abdomen thigh, arm	45°	22-24
Intramuscular (IM)	Adult-Deltoid Pedia - Vastus Lateralis Ventrogluteal – large amount Buttocks -upper outer- prevent hitting sciatic nerve lead to paralysis	90°	20-21

IM__21
SubQ 25



Z track method *(in IM medications)
- prevent leakage & irritation & staining
- ex. Iron (imferon) – dark brown color
- do not massage



INTRAVENOUS FLUIDS

VESICANT	NON-VESICANT
Ex. **Chemo agents,** (Check patency vein, aspirate) There will be vein rupture ↓ Tissue leakage ↓ Burns (extravasation) **Mgt: STOP!**	**IVF** 1. **Phlebitis**- inflammation Vein, warm, redness, pain ✓ Change IV 72° 2. **Infiltration**- pain, cool, pale ✓ Remove & change IV site, apply warm compress, elevate

Notify Dr	**3. Speed shock** – too rapid adm. of IVF-distended (initial) veins specially infants **Mgt:** diuretics **4. Air embolism**- restlessness ↓LOC **Mgt: 1.** Stop **2.** Position Left Trendelenburg to trap the air 3. Notify the Dr 4. O2 supply (100%)

Starting an IV infusion:

1. Open and prepare the infusion set
2. Spike the solution container
3. Apply a medication label in the container
4. Apply a timing label in the container
5. Hang the solution
6. Partially fill the drip chamber in the solution
7. Prime the tubing

Changing from IV Solution to Tubing:

1. Clamp the tubing on the administration set
2. Invert the solution bag and remove the spike
3. Remove protective cap from the tubing
4. Spike the new tubing to the solution bag
5. Release clamp to allow IVF through tubing
6. Reopen the clamp and adjust the flow rate
7. Open clamp on new tubing with short extension tubing taped in place

Changing an IV Catheter to an Intermittent infusion Lock

1. Prepare materials needed
2. Remove the IV tubing and insert intermittent infusion plug into the IV catheter
3. Instill saline or heparin solution
4. Tape the intermittent infusion plug in place using a chevron or U method
5. Teach the client on how to maintain the lock
6. Document

Computation:

Oral meds: solid (tablets or capsules)

No. of tablets = Desired x tablet (med label)
Available

Oral/Parenteral Meds: Liquid form

Dose in mL= Desired dose x Dilution (med label)
Stock dose

1. The order is to give Demerol (meperidine) 35 mg I.M. q 4h p.r.n. for pain. The medication is supplied in an ampule marked 50mg per ml. How much of the medication should the nurse give?
   Calc.
   35mg x 1mL = 0.7 mL
   50mg

   Answer: 0.7ml

2. A client is to receive 10 mEq of KCl diluted in 250 cc of normal saline over 4 hours. At what rate should the nurse set the client's IVF pump?
   a. 13 cc/hr
   b. **63 cc/hr** Calc. 250cc = 63 cc/hr
   c. 80 cc/hr 4hr
   d. 125cc/hr

3. Heparin 20,000 units in 500 ml D5W at 50 ml/hr has been infusing for 5 ½ hours. How much heparin the client received?
   a. **11,000 units** Calc. 20,000 U= 40U x 50ml
   b. 13,000 units 500 ml ml hr
   c. 15,000 units = 2000U x 5.5 = 11,000
   d. 17,000 units hr

4. A client was ordered to be infused with 1000 ml of D5W in 12 hours. The drop factor is 15 per ml. The IVF must be set at how many drops per min?
   Ans. 21 gtts/min Calc. 1000ml x15 =15000=21
   12 hr x 60 min 120

IVF rate

ml/hr = total vol (ml) x gtt factor (15)
no. of hrs

gtts/min = vol in cc x gtt factor
no. of hrs x 60 mins

Cardio drugs:

Dobutamine, the constants are
Single dose= 16.6 (translates to 250/250 or 500/500)
Double =33.3 (translates to 500/250 or 1000/500)

Dopamine, the constants are
Single dose= 13.3(translates to 200/250 or 400/500)
Double =33.3 (translates to 400/250 or 800/500)

5. A patient weighing 182 lbs was ordered to be given DOBUTAMINE at 5 mcg/kg/min. The preparation is 500mg in 250 mL of D5W. How many ml/hr should

the patient receive? How many ugtts/min should the patient have?

Calc. 182/2.2 = 82.7 kg

500 x 1000 = 500,000 mcg

- 5mcg/Kg/min x 250 ml/500,000mcg x 82.7kg/1kg x 60min/1hr = **12.4ml/hr**
- Dose x wt in kg / Constant x 5.82.7/33.3 = **12.4 ml/hr**

6. A patient weighing 176 lbs was prescribe DOPAMINE at 5 mcg/kg/min. The preparation is 400mg/250 ml in D5W. How many ml will the nurse give in an hour? Round of the nearest whole number.

Calc. 176/2.2 = 80 kg

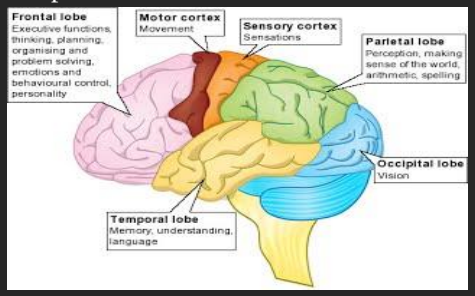
- 5mcg/Kg/min x 250 ml/400,000mcg x 80kg/1kg x 60min/1hr = **15ml/hr**
- Dose x wt in kg / Constant x 5 x 80/26.6 = **15 ml/hr**

NEUROLOGY & SENSORY DISORDERS

THE NERVOUS SYSTEM

Central Nervous System

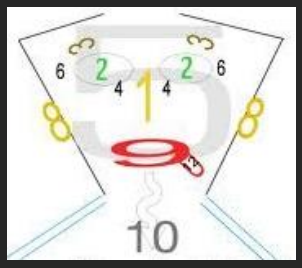
1. **Cerebrum**
   a. **Frontal lobe**- thinking lobe (decision making and planning), speech, movements, and critical thinking
   b. **Occipital** - vision
   c. **Temporal** – hearing, language memory, comprehension
   d. **Parietal** – coordination of senses, orientation of the body parts
2. **Cerebellum**
   ✓ Balance, coordination of movements
3. **Brain Stem**
   ✓ Respiration



Peripheral Nervous System

- **Somatic** – voluntary

Mnemonic: face

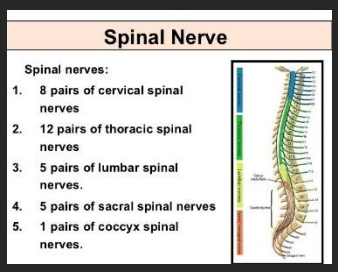


Cranial Nerves

I – Olfactory	- Smell	- Sensory
II – Optic	- Vision	- Sensory
III - Oculomotor	- Pupil di/constriction	- Motor
IV – Trochlear	- Eye Mov't (arch)	- Motor
V- Trigeminal	- Corneal reflex, Mastication Facial sensation	- Both
VI – Abducens	- Eye Mov't (lateral)	- Motor
VII- Facial	- Facial movement Taste sensation (1st 2/3 of the tongue)	- Both
VIII- Acoustic	- Hearing	- Sensory
IX- Glossopharyngeal	– Swallowing Taste sensation (last 3rd of the tongue)	- Both
X- Vagus	- Gag reflex, swallowing- Peristalsis	- Both
XI-Spinal Accessory	– Shoulder Mov't	- Motor
XII-Hypoglossal	– Tongue Mov't	- Motor

"**S**ome **S**ays **M**oney **M**atters **B**ut **M**y **B**rother **S**tates **B**ig **B**reast **M**atters **M**ost"

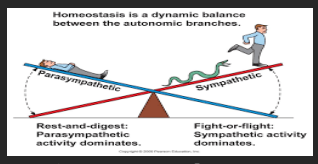
"**OOO T**o **T**ouch **A**nd **F**eel **A G**irls **V**agina **S**eems **H**eaven"



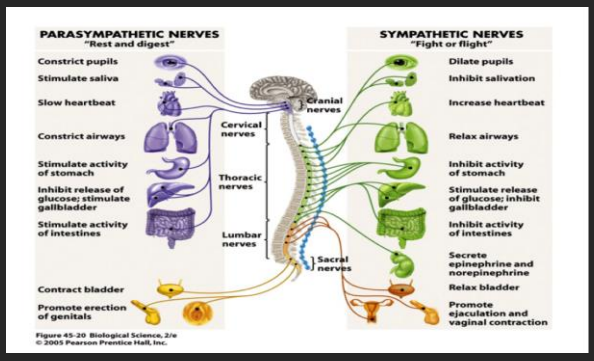
Mnemonic
Cranial nerves
Breakfast at 8
Lunch at 12
Dinner at 5
Early Breakfast at 5
Siesta at 1

- **Autonomic** *(**Automatic**)
  ✓ Involuntary
  ✓ Ex. Heartbeat, peristalsis, respiration
  a. **SNS** (sympathetic nervous system)
  ✓ Fight/flight
  ✓ Epinephrine
  ✓ Dry

- ✓ Adrenergic (Adrenaline)



b. PNS (parasympathetic nervous system)
- ✓ Water
- ✓ Rest and digest
- ✓ Acetylcholine (cholinergic)



SNS	PNS
✓ Vasoconstriction	✓ Vasodilation
✓ ↑ Bronchodilation	✓ ↓ Bronchoconstriction
✓ ↑ Hyperglycemia	✓ ↓ Hypoglycemia
✓ ↑ Mydriasis (dilation)	✓ ↓ Miosis (pupil const.)
✓ ↓ GIT- constipation	✓ ↑ GIT- diarrhea
✓ ↓ GUT- oliguria	✓ ↑ GUT- polyuria
✓ Uterus-relax	✓ Uterus - contract

DEMYELINATION DISORDERS

Autoimmune disorders

↓

Immune system attacks your myelin sheath which promotes scarring or destruction

↓

Impulse conduction

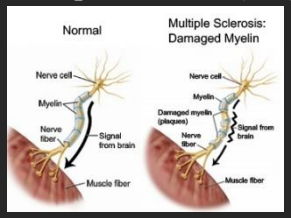
↙ ↘

CNS (MS) PNS (GBS)

General treatment:

1. Corticosteroids
2. IV Ig (usually Kawasaki Dse)
3. Plasmapheresis
   - ✓ Removal of harmful antibodies in the system

1. Multiple Sclerosis (MS) *mula sataas



- ✓ Common in female, age 20-40, cold, Caucasians (like snow white)
- ✓ Descending paralysis

S/Sx

- ✓ Visual disturbances (early manifestation)
  a. Scotoma – central vision loss
  b. Diplopia- double vision
- ✓ Dysphagia
- ✓ Respiratory depression (intubation)
- ✓ Ataxia- loss of coordination of movements

Charcot's Triad

- ✓ Scanning speech- slow talking with interruption of syllables
- ✓ Intentional tremors
- ✓ Nystagmus – involuntary eye movement
- ✓ ↓ GIT
- ✓ ↓ GUT
- ✓ Spasticity
- ✓ Lhermitte's sign (barber's chair phenomenon) – a sudden sensation resembling an electric shock that passes down the back of your neck into your spine after the flexion of the neck.

Mgt.: General treatment

- ✓ Mechanical ventilator support
- ✓ Assistive devices
- ✓ Drugs: muscle relaxants

  Ex.: Soma (Carisoprodol), Flexeril (Cyclobenzaprine), Baclofen (Lioresal, Gablofen)

  -relieve muscle spasm

2. Guillain Barre Syndrome (GBS) *galing baba

- ✓ Ascending paralysis
- ✓ Contributing factors - 2° to infection ex. Kissing's dse = campylobacter jejuni or Epstein-Barr virus

S/Sx: Dyskinesia (earliest manifestation)

- ✓ Clumsiness
- ✓ ↓ GIT & GUT
- ✓ Respiratory depression
- ✓ Dysrhythmias
- ✓ Dysphagia
- ✓ Facial weakness

Mgt.: General treatment

- ✓ Assistive device
- ✓ Mechanical ventilator
- ✓ Antiarrhythmic – Amiodarone
- ✓ Monitor v/s and ECG

NEUROTRANSMITTER DISORDES

1. Myasthenia Gravis *(mata galing)

- ✓ Descending paralysis
- ✓ Causes:
  a. Autoimmune – immune system attacks ACETYLCHOLINE receptor sites.
  b. Cholinesterase – erase acetylcholine

✓ **Dx test: Tensilon test**
- ✓ Test anticholinesterase
  - ✓ Short acting
  - ✓ Duration 3-5 min
  - ✓ Route IV
  - ✓ (+) if the weakness disappears

Tensilon test: Before (left); After (right)

✓ **S/Sx**
- ✓ Ptosis – drooping eyelids - initial
- ✓ Facial weakness
- ✓ Muffled/hoarse voice
- ✓ Dysphagia
- ✓ Respiratory depression
- ✓ ↓ GIT
- ✓ ↓ GUT
- ✓ Generalized body weakness/malaise
- ✓ **DOC:** - Neostigmine – more potent
  - (Mestinon) Pyridostigmine - longer acting
- ✓ **PNS Mx (manifestation): WOF:**
  - **Overmedication – ChOlinergic crisis** (watery)
    ↓
    Teary eyes and ↑ salivation
    ↓
    Give anticholinergic drug- **atrOpine**
  - **Undermedication – Myasthenic Crisis**
    ↓
    Exacerbation of S/Sx
    ↓
    " stigmines adm."

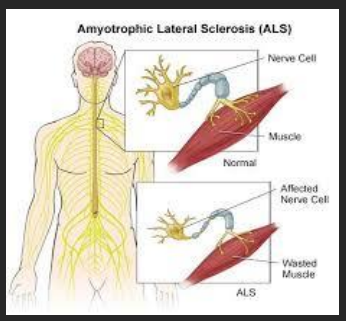
2. Parkinson's disease (PD)
✓ ↓ Dopamine
- ✓ Disintegration of substantia nigra in the midbrain responsible for the production and release of dopamine
- ✓ Inform the Dr if the patient has a plan to have a baby/breastfeeding because it crosses the breastmilk

S/Sx
- ✓ Cogwheel rigidity **(earliest)**
- ✓ Resting tremors (pill rolling)
- ✓ Micrographia – penmanship that progressively decreasing in size
- ✓ Mask-like facial expression
- ✓ Incontinence
- ✓ Stooped posture
- ✓ Bradykinesia
- ✓ Shuffling gait, small rapid unstable steps
- ✓ Advice to look straight ahead while walking

Mgt.:
- ✓ Assistive device
- ✓ **DOC:**
  a. **Sinemet** {levodopa (converted to dopamine) + carbidopa (preserve the levodopa to prevent the enzyme from destroying it)}
  b. Symmetrel (Amantadine HCL)
  Parlodel (Bromocriptine Mesylate)
  Mirapex (Pramipexole)
  Eldepryl (Selegiline HCL)
  c. Ropinirole (Requip) – dopamine agonist

WOF: Signs of Psychosis - ↑ dopamine

3. Amyotropic Lateral Sclerosis (ALS)



✓ **Lou Gehrig's dse-** common in male
✓ Neurotransmitter ↑ of Glutamine lead to excitotoxicity affecting **motor neurons ONLY** so the memory, GIT and GUT are still intact.

S/Sx
- ✓ Fasciculations (**earliest**) – contractions of small muscle fibers
- ✓ Hyperreflexia – exage reflex
- ✓ Spasticity
- ✓ Respiratory depression – intubation ONLY 21 days then use tracheostomy
- ✓ Quadriplegia/ Tetraplegia – paralysis of all extremities
- ✓ Muscle atrophy, Tongue atrophy

Mgt.: Palliative treatment
- ✓ Est. Life span 5 years
- ✓ **DOC. Riluzole / Rilutek** – delay your ventilator dependency

Summary ↓ Acth ↓ Dop ↑ Glutamine

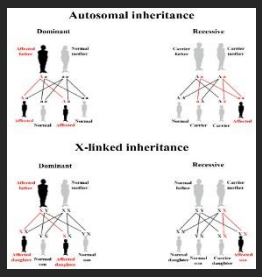
	MS	GBS	MG	PD	ALS
Autoimmune	✓	✓	✓	X	X
Weakness	↓	↑	↓	X	X
Pattern weakness	↓	↑	↓	X	X
Earliest Mx	Visual dis.	Dyskinesia	Ptosis	Rigidity	Fasciculation
Dysphagia	✓	✓	✓	✓	✓
Respi Dep.	✓	✓	✓	✓	✓

GIT (constiption)	✓	✓	✓	✓	X
GUT (↓ urine output)	✓	✓	✓	✓	X

Add notes: neurogenic bladder – bladder atony

Huntington's disease

- Autosomal Dominant disorder (hereditary) – even if only one gene is defective



- ↑Dopamine
- **Signs of psychosis**
  - Hallucination- sensing without stimulus
  - Illusion- inappropriate sensing of senses
  - Delusion – wrong perception of oneself
    - Delusion of grandeur (superior)
    - Delusion of persecution

Mgt.

✓ Anti-psychosis = **Haloperidol (ok-pregnant)**

WOF: EPS -

- ✓ Dystonia – loss of muscle tone, poor posture
- ✓ Tardive dyskinesia (irreversible) – jaw swinging, involuntary repetitive facial movements, tongue protrusion, lip smacking,
- ✓ Akathisia – feeling of restlessness
- ✓ Pseudoparkinsonism – Mx bradykinesia, rigidity and tremors–**tx Benztropine (Cogentin)**

JITL

BRiT

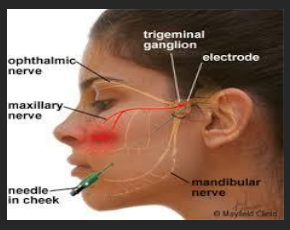
✓ - ↓**Acetylcholine**

- ✓ Memory loss/dementia
  - ✓ **Mgt.** Cognex (Tacrine), Aricept (Donepezil), Namenda (Memantine HCL)
- ✓ Chorea – involuntary dance like jerky movement
  - ✓ **Mgt.** Tetrabenazine (Xenazine)

CRANIAL NERVES DISORDERS

1. Trigeminal Neuralgia – tic douloureux

Cranial nerve #5



✓↑ Impulse of CNS

✓ **Triggers**

- ✓ Hot/cold food
- ✓ Hard food
- ✓ Facial stimulation

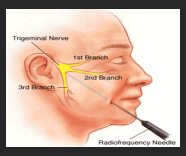
↙ Sensory Mx: -excruciating pain

↘ Motor Mx: - facial twitching, grimacing

Mgt.DOC: Carbamazepine (Tegretol) – **N- 5-12 mcg/ml**

Surgery: Facial Rhizotomy – electrode inserted face to the skull (base) via foramen ovale, heat current applied to CN5 to partially destroy it & to resolve Mx

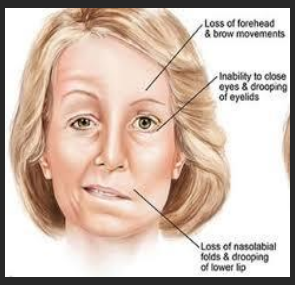
Health teaching: Avoid triggers



2. Bell's Palsy

Cranial nerve #7

✓ Compress or inflammation due to autoimmune response or infection Herpes simplex/virus



Sensory

✓Unilateral facial paralysis

Motor

✓facial drooping

✓inability to close the eyelids complete

Mgt.

✓ Corticosteroids

✓ Artificial tears- prevent corneal abrasions

Health teaching – encourage facial massage/exercise

CNS DISORDERS

1. SEIZURE

- sudden surge of electrical impulse of the brain activity
- it's just a manifestation not a dse

Seizure disorders

a. **Epilepsy** – a repetitive seizure

b. **Status epilepticus** – seizure episode that last for more than 5 min.
- recurrent seizure without going back to the baseline (awake-seizure-unconscious-then seizure again)

Causes of seizure

✓ High grade fever, brain trauma, tumor, infection, substance abuse or toxicity, severe hypoglycemia, electrolyte imbalance -↓ Na+, idiopathic (unknown)

Seizure category

a. **Generalized** – sudden impulse is initiated on the entire brain

Type:

- **Tonic-clonic -** Grand mal seizure
- **Absence seizure** – Petit-mal
  - ✓ Sudden behavioral arrest commonly 10-15 sec

b. **Partial** – initiated on the specific part of the brain and it may spread

Type:

- **Simplex** – patient conscious

- **Complex –** patient unconscious

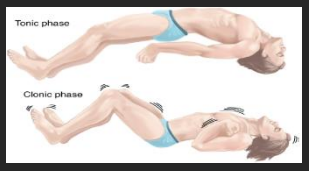
Diagnostic pro.:

a. **EEG –** use H2O soluble adhesive gel
   prep: -avoid anticonvulsant
   - ✓ hair shampoo- to attach electrodes easily
   - ✓ avoid stimulants (caffeine)
   - ✓ no sleep the night prior to a sleep EEG (test with/without a stressor)
   - ✓ Not painful – inform pt, dec anxiety

Phases of seizure

a. **Aura**
   - flashes of lights
   - smell of a burning wire
   - metallic taste

b. **Unconscious -** ↑secretions
c. **Tonic-** stiffening – shape of arch common
d. **Clonic –** jerking
e. **Postictal –** sleep phase
   ✓↑ Secretions



Interventions

1. Stay calm
2. Mark the start time – assess seizure duration
3. If the patient is standing, lay the patient on the ground (rush to apply pillows)
4. If lying on the side - to prevent aspiration suction the secretions as needed, then provide O2. If side-lying is contraindicated just turn the head to the side, PRIO - **Airway**
5. Loosen the tight clothing and remove unnecessary materials near the patient
6. Observe for the duration
   - ✓ Do not put anything in the patient's mouth
   - ✓ Do not promote abrupt temperature change, just TSB
   - ✓ Side rails up
7. Monitor V/S and level of LOC

DOC: Diazepam (Valium) – emergency drug
   ✓ **(+)** disorder of status epilepticus

Maintenance drug

Barbiturates – (CNS depressants) A/E – bone marrow depression
   ✓ CBC monitoring

Dilantin (Phenytoin) – S/E- gingival hyperplasia
   ✓ 10-20 mcg/ml- therapeutic level

Valproic acid (Depakene)- 50-100 mcg/ml therapeutic level

Lamictal or Phenobarbital

2. MENINGITIS

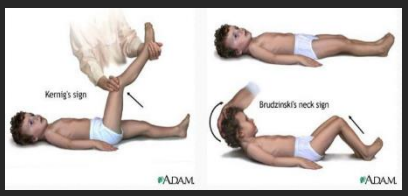
- ✓ Meninges – covering of the brain
- ✓ **Causes**:
  - ✓ **Bacteria** (streptococcus pneumonia or Neisseria meningitidis), deadly even an hour < 20 y.o.
  - ✓ **Virus**- entero/coxsackie virus- common <5 y.o.
  - ✓ **Fungal** – cryptococcal meningitis

Mx:

- ✓ Fever
- ✓ Rigidity/nuchal rigid
- ✓ **Brudzinski's sign (back of neck)–** patient lie flat, flex the neck (outcome hips and neck flexion)
- ✓ **Kernig's sign (Hamstring muscle strain) –** patient lie flat flex the hip and extend the **K**nee there will be rigidity.

WOF:

- ✓ Photophobia
- ✓ Seizure episode
- ✓ N/V (projectile)



Mgt.

- ✓ Antibiotic
- ✓ Dexamethasone (Corticosteroid)
- ✓ Antipyretic
- ✓ Anticonvulsant
- ✓ Anti-emetics

3. MIGRAINE

- ✓ Serotonin= mood, appetite, pain, sleep MAPS
  ↓ Serotonin due to stress and tyramine rich foods (chocolate), fermented foods, beer, wine, sausages, except cottage cheese

  (estrogen imbalance**)**
- ✓ Vasodilation – ex. "**nitrates**"- S/E headache

Phases: PAAP

a. **Prodromal phase –** days before the attack
   -**Mx -**↑ sensitivity to light, sound etc.
   - Excessive yawning, thirst, cravings for food, sleep, irritability, loss of focus

b. **Aura phase –** min to hours before the attack
   - **Mx –** visual disturbance, ex. Flashes of light

c. **Attack phase –** pain phase
   - **Mx**- throbbing pulsating, N/V
   - common- unilateral pain (excruciating)
   - do not lean forward or look down, it will aggravate**.**

d. **Post-dromal** days after the attack
   – fatigue,↑sensitivity to light, lethargy

DOC: - vasoconstrictor

Migranal

Frova - Serotonin agonist **(**mimics the effect**)**

Increase Intracranial Pressure

Cause: Trauma, Tumor, Infection

- ✓ Edema → ↓O2 → Hypoxia
- ✓ CSF displacement
- ✓ Brain stem herniation → respiratory depression → ↓RR

V/S - ↑ BP (**Rock 'n Roll sign**)
↓ RR
↓ HR
↑ Temp
Widened pulse pressure

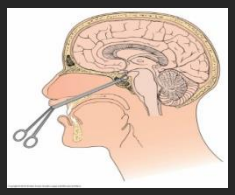
Normal: 5-15 mmHg
Acceptable: 15 – 20 mmHg
Intervene: >20 mmHg

Mgt. O2
Semi- fowlers
Dexamethasone (Corticosteroid)
Mannitol – ideal (fast, bolus because it crystalize)
Surgery – craniotomy (ventriculostomy tube)

- ✓ JP (Jackson Pratt drain)-do not apply pressure

Craniotomy

Transsphenoidal Hypophysectomy- suture line between the upper gum and upper lip, **ideal** position semi-fowlers



Supratentorial (cerebrum**) –** post **s**emi-fowlers. Suture is in the hairline

Infratentorial (cerebellum**) –** suture is at the base of the skull, post **f**lat on bed

Basilar Skull Fracture- Trauma leads to leakage of blood and CSF, Sign: **HALO**

Battle's sign or Mastoid ecchymosis - CSF leakage or blood in the ear

Racoon's eye/periorbital hematoma- blood leakage in the eyes

Otorrhea- CSF leakage in the ear

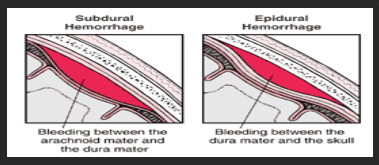
Epistaxis – nose bleed

Rhinorrhea – leakage of CSF in the nose

Hematoma

Mgt- surgery and evacuation of hematoma

Epidural	**Subdural**
Above dura	Below dura
-Artery	- Vein
-rapid blood accumulation	- less rapid
-rapid↓ in LOC	- less rapid



CEREBROVASCULAR ACCIDENT "STROKE"

Thrombus- 1° culprit

↓ O2 → hypoxia → Ischemic stroke

↑ in pressure of blood vessels → ruptured → Hemorrhagic stroke

Mgt:

-ideally given within 3-6 hours
Consider when pt last seen well

- Thrombolytics
- Fibrinolytics
- TPA (tissue plasminogen activator)

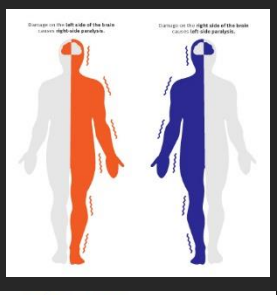
-Anticoagulants
- if you don't know the onset
- more than 6 hours
- **WOF** bleeding

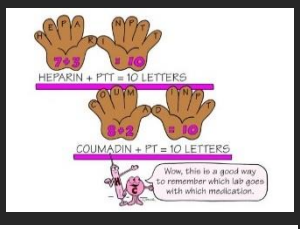
Rule of 10

HEPARIN PTT
WARFARIN PT

- Tranexamic acid (hemostan)
- Aminocaproic acid (Amicar)

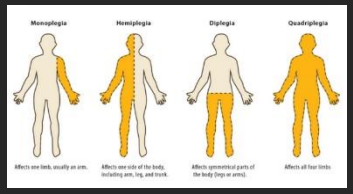
Position- High level of head/ last resort ↑fowlers
Avoid neck flexion – impede drainage





S/Sx

- ✓ Slurred speech
- ✓ Hemiparesis- weakness
- ✓ Hemiplegia - paralysis
- ✓ Aphasia
- ✓ Facial asymmetry



Aphasia

Scene 1

"M..m..e.me..medddsss?"

- ✓ **Expressive**
  - ✓ Brain affected- **Broca's area (**frontal**)**

- ✓ **Mgt.** Pen and paper, pictures

Scene 2 " When? Easy for my river runs black boxes whizzle abatta when bobbles come!!!"

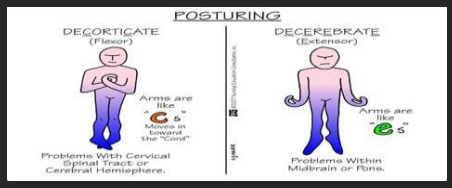
- ✓ **Receptive**
  - ✓ Word salad
  - ✓ Brain affected – **Wernicke's area** (temporal)
  - ✓ **Mgt.** Talk slow and use action

Scene 3- both are affected – **Global aphasia**

GLASGOW COMA SCALE

Eye opening response	Verbal Response	Motor Response
4 – Spontaneous (open then remain open) **3 – To verbal stimuli** (open-close) **2 – To pain** (open-close with stimuli/sternal rub) **1 – None**	**5 – Oriented** (time, place, person- 3 spheres) **4 – Confused** (1 sphere affected) **3 – Inappropriate words** **2 - Incoherent** **1 - None**	**6 – Obeys commands** **5 – Localize's pain** (inflict pain in the localize towards central area) **4 – Withdraws from pain (**inflicts pain to distal area, patient withdraw**)** **3 – Flexion to pain or decorticate** (deCURLticate) **2 – Extension to pain or decerebrate** **1 – None**

Scoring:

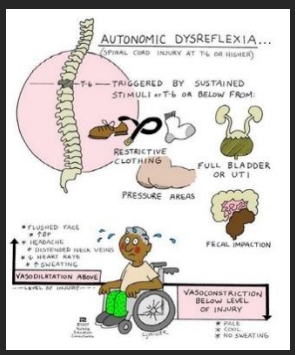


14 – 15 = conscious
11 -13 = Lethargic
8 – 10 = Stupor
4 – 7 = Coma
3 = Deep coma = **REPORT!!!** usually every hour
↓ 8 = intubate
* if with mech. vent just document.

SPINAL CORD INJURY

- ✓ The higher the injury the greater the injury

C1 – C4 = Diaphragm (**diaForm**)
C5 – T4 = T (**Arms**)
T5 – T6 = Chest (**6hest**)
T7- T12 = Abdomen (**1.2 –abd**)
L1- L5 = **"L"** legs
S1 – S3 = **3 letters** GIT & GUT
S4 –S5 = Sex organs
Coccyx = sensation of coccyx



AUTONOMIC DYSREFLEXIA

- *life-threatening*
- T6
- **cause** = noxious stimuli, so just remove the stimuli
- **ex.** Full bladder, fecal evacuation, kinks in cath., pressure ulcer, tight clothing, constipation
- response of the body

a. Sudden surge of sympathetic response – wide vasoconstriction → **Mx. Paroxysmal HTN** (sudden)

b. Activate vagal response (PNS)

↓

vasodilation

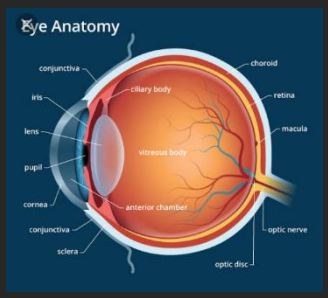
↓

reason why flushing, diaphoresis, headache, nasal stuffiness & slow HR (**Mx above** the lesion site-most common T6) (**below** the lesion – cold and clammy skin)

Intervention: ↑ fowlers position- drainage

- ✓ Notify the dr
- ✓ Monitor v/s & LOC

SENSORY DISORDERS



1. **Cataract**
   - ✓ Lens – with protein and H2O
   - ✓ Cause: Aging

   ↓

   Agglutination (protein clog together)

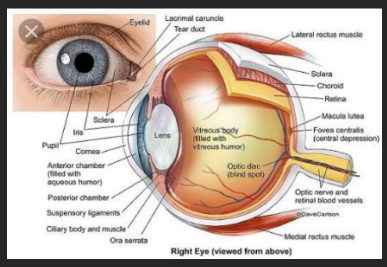
   ↓

   Blurring of vision, blindness, (-) red reflex, opacity of the lens

   - ✓ **Intervention:**
     - ✓ ICCE (Intracapsular Cataract Extraction)
       - ✓ lens including elastic capsule removed
     - ✓ ECCE (Extracapsular Cataract Extraction)
       - ✓ Only lens is removed
     - ✓ Phacoemulsification
     - ✓ All give mydriasis, ATB (antibiotic), Anticholinergic (Atropine), neo-synephrine -- SNS
     - ✓ All there's a lens replacement

WOF: Pain & restlessness post-op is reportable

- ✓ Apply patches (both)
- ✓ Side-lying on unaffected area



2. Retinal detachment

Usually cause by trauma

↓

Tear

↓

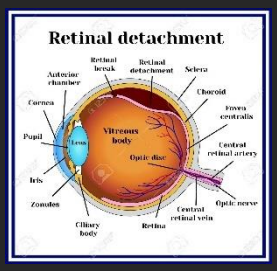
Blood accumulation

↓

Flashes of light

↓

Floaters (small flecks or threads)



Mx:

Darkening of your peripheral (side) vision

Tx:

1. Scleral buckling- apply elastic sponge site tear to apply pressure
2. Laser photocoagulation- repair tear cautery

***post affected side,** 1 patch only

3. Glaucoma

- ↑ intraocular pressure (Normal 10-20)

Obstruction of the lens → Closed angle glaucoma → Pain

↑ aqueous in humor production → Open angle → No pain

Mx. Both

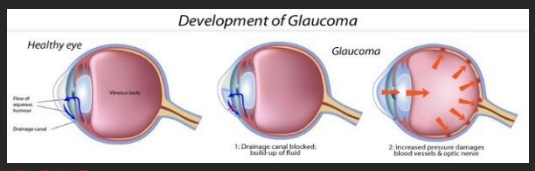
Halo
Peripheral vision loss
Blurring of vision
Blindness

Mgt.

Iridectoy
Diamox
-diuresis
(both)

miOtic:
Pilocarpel
--↓ IOP
- miotic drug

Timolol
- drug ↓ production of aqueous humor
-given LIFETIME
-**Timoptic**

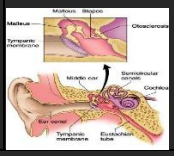


EYEDROPS

1. Sitting, head tilted back/supine
2. Expose the lower conjunctiva
3. Hold and stabilize the dropper at the forehead
4. Ask the patient to look up, instill # of drops
5. Close eyes gently for 1-2 min
6. Occlude lacrimal duct to prevent systemic absorption

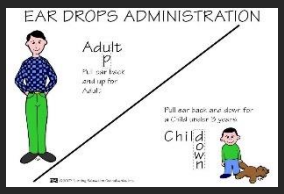
Od → - right eye (going to right)
O ← S - left
OÜ – both

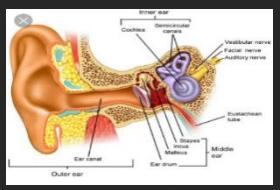
Ear disorders

	Otosclerosis	Meniere's dse
Cause	Hereditary	Unknown/infection
Affected part	Stapes (bone)	Inner Ear
Type of hearing loss	Conductive	Sensory Neural
S/Sx	Vertigo Tinnitus Irritability Dizziness	Vertigo Tinnitus Aural fullness (**just like diving then ear pressure**)
Mgt	Stapedectomy 	**Surgery:** labyrinthectomy **Med.** -Meclinizine/bonamine/ antivert -betahistine (serc) -↓ Na Diet

EARDROPS

1. Side-lying on unaffected area
2. Straighten the ear canal
   - ✓ >3 pull the pinna up and back
   - ✓ <3 pull the pinna down and back
3. Hold dropper
4. Instill in ear canal & allow it to flow inside
5. Place cotton ball above the ear flap
6. Massage and remain still

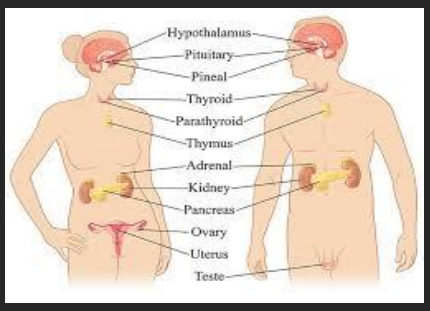




Ad → - right ear (going to right)
A ← S - left
AÜ – both

ENDOCRINE SYSTEM

ANATOMY:



1. **Pineal glands**- melatonin (sleep hormone)
   - ↑ Melatonin – hypersomnia
   - ↓ Melatonin - insomnia
   - ✓ Sleep-wake cycle or circadian rhythm
2. **Hypothalamus** – big boss, link to your CNS to endocrine system
3. **Pituitary**
   a. **Anterior**
   b. **Posterior**
4. **Thyroid**- if you see this word think of metabolism
5. **Parathyroid** – Ca+ metabolism, release of PTH transfer Ca+ from bone to blood
   - ✓↓ Ca+ = ↓ PTH – spasm, tetany, tingling
   - ✓↑ Ca+ = ↑ PTH – weakness

6 **Thymus** – responsible for immune system, for T-cell maturation

7 **Adrenal**

a. **Adrenal cortex**

Glucocorticoid (cortisol) steroid

Stress hormone

- ✓ Cause ↑ blood glucose ↓ immune sys.
- ✓ CARBO and Fat metabolism

Steroid Treatment

- ✓ Normally no cortisol release by the body

Aldosterone (mineralocorticoid)

- ✓ Na+ and H2O reabsorption

b. **Adrenal medulla** – tumor problem

Catecholamines

Epinephrine ↑ cardiac output

Norepinephrine ↑ BP

8 **Pancreas**

9 **Ovaries**

10 **Testes**

PHYSIOLOGY

Hypothalamus

✓ **Posterior pituitary**

OA

- ✓ Oxytocin – stimulates uterine contractions, milk ejection during lactation
- ✓ ADH – reabsorb H2O only
  -controls the excretion of H2O by the kidneys

✓ **Anterior pituitary**

- ✓ Growth hormone – stimulates growth at night
  - ✓ Ass. with Dawn phenomenon
- ✓ Prolactin – stimulates development of mammary gland and secretion of milk
- ✓ Melanocyte Stimulating hormone – stimulates production of melanin
- ✓ TSH → Thyroid → T3, T4, Calcitonin
- ✓ ACTH → Adrenal Cortex → Glucocorticoid and Mineralocorticoid
- ✓ FSH and LH → gonads

  FSH – stimulates gamete (ova and sperm) production by gonads

  LH- stimulates sex hormone (estrogen and androgen) production

DIAGNOSTIC TEST:

1. **Stimulation:**

H2O deprivation test

- ✓ Test for DI
- ✓ Avoid fluids 4-8 hours
- ✓ Induce dehydration → ↓ BV = ↓ BP
- ✓ Normal response = posterior pituitary gland → ↑ADH → ↑ H2O reabsorption → oliguria → concentrated urine → ↑ USG and urine osmolarity
- ✓ Abnormal - posterior pituitary gland → ↓ADH → ↓H2O reabsorption → polyuria → ↓ USG and urine osmolarity

2. **Suppression test (dexamethasone-steroid)**

- ✓ Test for Cushing's

1. Fasting 10-12 hours
2. At night give dexamethasone 1mg p.o.
3. Get baseline cortisol levels in the morning
4. Get cortisol level

with Cushing ↑ glucose and ↑ cortisol

Normal cortisol level < 5 ug/dl

Abn > 10 ug/dl

PATHOLOGY

A. POSTERIOR PITUITARY GLAND DISORDER

1. DIABETES INSIPIDUS (DI)

Problem: ↓ ADH → ↓ H2O reab → H2O wasting → **Polyuria** → ↓ BV ↓ BP leads to ↓ Cardiac Output → ↓ Volume
= diluted urine: ↓USG - < 0.010
↓ Urine output

WOF: Shock – polyuria leads to dehydration leads to weight loss leads to **Polydipsia**
= hemoconcentration - ↑ serum osmolarity

Meds: Prevent voiding
WOF: fluid overload → ↑ edema = ↑ BP
Potent vasoconstrictor

Desmopressin (DDAVP, Stimate)
- S/E – runny nose; intranasal – alternate nostrils to prevent irritation

Lypressin (Diapid)

Vasopressin (Pitressin) – bedtime: prevent nocturia/ sleep disturbance

Nursing Intervention: ↑OFI

2. SIADH

↑ADH → ↑ H2O reab → Oliguria → ↑BV leads to ↑ BP → ↑ CO → Hypervolemia
= urine concentrated: ↑USG and urine output
= hemodilution - ↓ serum osmolarity

WOF: cerebral edema → ↑ ICP = ↓ LOC
Nrsg Int: Restrict OFI

Oliguria leads to fluid overload → weight gain
↓Na+ expected

Meds: induce voiding

Demeclocycline (Declomycin) – antibiotic cause it has diuresis effect

IV hypertonic saline (3%) – prevent cerebral edema

Diuretics – K+ wasting to conserve ↑ Na+

BFHM
X

DI	SIADH
↓ H2O ↓ BP ↓ Cardiac output polyuria ↑ Na+ ↑ Hct	↑ H2O ↑ BP ↑ Cardiac output oliguria ↓ Na+ ↓ Hct

B. ANTERIOR PITUITARY GLAND DISORDERS

1. HYPOPITUITARISM

Types:
a. **Sheehan's** – post-partum pituitary necrosis (due to severe blood loss)
b. **Simmonds's dse** – panhypopituitarism (all) posterior and anterior
c. **Dwarfism** – common primordial, ↓GH

- **Posterior** - ↓ ADH - DI
- **Anterior** - ↓ LH and FSH, loss of libido or oligomenorrhea or amenorrhea, infertility, delayed puberty
- ↓ ACTH – Addison's
- ↓ TSH – hypothyroidism - ↓ GH – growth retardation/ central obesity

Meds: lifelong hormone therapy
except **Somatrim, Somatropin** – give until puberty/desired height reach; GH substitute

2. HYPERPITUITARISM

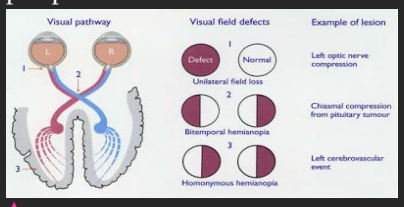
- Tumor/pituitary adenoma/pituitary hyperplasia
- **Posterior** - ↑ADH - SIADH
- **Anterior** - ↑ LH AND FSH → precautious puberty (early onset)

↑ ACTH - ↑ Cushing's
↑ TSH – hyperthyroidism
↑ GH – **before** epiphyseal closure,
Gigantism –height 8ft
- **after** epiphyseal closure,

Acromegaly/size - ↑ bone structure,
↑ Skull
↑ Hand and feet size
Jaw is protruding

Acromegaly complication
↑ Skull
↓
Damage to optic nerve (compression & ↑ICP)

Common problem:
a. Bitemporal hemianopsia – loss of peripheral vision outer half of L&R



b. ↑ICP – hypertension & Bradypnea
Mgt: Semi-fowlers

- **Meds: Bromocriptine (Parlodel)**-adenoma
  Octreotide (Sandostatin)- prevent GH pro.
- **Surgery:** best
  Hypophysectomy – removal of pituitary gland
  a. Craniotomy
  b. Transsphenoidal Surgery – preferable
    - Instrument inserted in the upper gingival mucosa between the upper lip and gum
    - Complication:
      - CSF leak – fluid in the nose
        WOF: rhinorrhea
        ✓ get a 4 x4 sterile gauge and get a sample of fluid for test (+) glucose = CSF leak
        ✓ yellow ring formation (HALO sign) = (+) CSF leak
      - Disturbance of the operative site
        ✓ Avoid bending, straining, Valsalva maneuver, vigorous coughing, usage of straw, toothbrush = 2 weeks
        ✓ Infrequent gentle flossing
        ✓ Avoid mouthwash
        ✓ Toothettes
        ✓ Gentle gargle NSS

- ↑ ICP – position semi-fowlers post procedure and provide non-stimulating
- Hypopituitarism
  WOF: DI
  Addison's
  Hypothyroidism
  Mgt: lifelong hormonal replacement therapy except GH

*Subjective data -assess 1st

C. THYROID GLAND DISORDERS

Thyroid hormones

1. **Thyroxine (T4)**
2. **Triiodothyronine (T3)**

Feedback Mechanism

Anterior pituitary (2° gland)
↓
TSH (2° hormone)
↓
Thyroid gland (1° gland)
↓
Thyroid hormone (1° hormone)

Primary
Opposite
Secondary
Equal

2° problem	1° problem
Anterior pit ↓ ↓ Thyroid = ↓ TSH ↓ ↓ TH	(anterior pit. not damage) ↓ Thyroid = ↓ TH ↓ ↑ TSH
Anterior pit ↑ ↑ Thyroid = ↑ TSH ↓ ↑ TH	↑ Thyroid = ↑ TH ↓ ↓ TSH

3. **Calcitonin** (Ca+ metabolism)
   - Ca+ from blood to bones
   - If thyroidectomy
     ↓
     Later: osteoporosis

HYPOTHYROIDISM= think of slow metabolism

- AKA: Myxedema
  Cretinism (pedia)
- Problem:
  1. Hashimoto's Dse (autoimmune)
  2. Diet: iodine deficiency
  3. Complication of procedure - Thyroidectomy
  4. RAI 131 (radiation therapy)
- Manifestations:
  Acne
  Amenorrhea (rare) *menorrhagia (most)
  Bradycardia
  BP ↓
  Constipation
  Cold intolerance
  Dry skin
  Dull mental process
  Temp: cool
  Alert
  Metabolism = ↑ cholesterol, wt gain
  ↓ Sweating

Risk: Atherosclerosis
Complication: Stress, Infection, Sedative
↓
Myxedema Coma
↓
Severely ↓ TH
↓
Exaggerated lethargy- Sign of myxedema coma

Priority: airway, O2

Med: Levothyroxine (levothroid, levoxyl, **synthroid IV-best) and Liothyronine =** hormone replacement AM with empty stomach

WOF-report: fever, chest pain (cause of lactic acid)

Dx: Activity intolerance r/t fatigue

*Both does not affect GUT/GIT = ↓/↑ Thy.

Alert Dr "?" __ never STOP meds causes Mexedema coma leading to death not unless specified

HYPERTHYROIDISM = ↑ metabolism

- AKA: Graves dse or Thyrotoxicosis
- Manifestations:
  - Heat intolerance, skinny, hyper, hot
  - *Exophthalmos (**hallmark sign**) –use sunglasses
  - Diarrhea
  - Diaphoresis
  - ↑ BP, Temp: warm
  - ↑ HR
  - ↑ Alert
  - ↑ Metabolism, sweating,*mood swing
  - Amenorrhea*(most)
- Complication:
  a. Stress, Trauma, Infection
  b. *Thyroidectomy – leak of thyroid hormone
     - Important to check the BP
  - These complications lead to **thyroid storm** – severely ↑ TH → exage Sx of delirium, fever, restlessness, coma
  - **Priority: airway,** ↑dosage of meds

Total_Tenaty
Subtotal_thyroid Storm

Treatment:

Put Thyroid Under

PTU or Propylthiouracil → WOF: Agranulocytosis
Methimazole (Tapazole) ↓WBC – report!!! fever, sore throat

Beta-adrenegic blocker

SSKI, Lugol's Solution (Strong iodine solution)

- Cause of iodine give using straw, dilute with orange juice, milk or H2O
- Pre-op med for thyroidectomy to ↓vascularity of thyroid gland ↓hemorrhage

RAI (131) – radiation therapy – pt needs to be alone for 24 hours, urine risk for nurses flush 3x or call hazmat team

- Radioactive (destroys thyroid)
- Internal and unsealed radiation – excreta: flush toilet 2x, no to pregnant/breast feeding
- Meds: TH substitute
  Ca+ supplement
- WOF: ↓thyroidectomy- so lifelong TH subs

Surgery: Thyroidectomy

- **Pre-op**: teach deep breathing exercise and coughing technique – hastens healing/recovery
- Adm Lugol's solution
- **Post-op** – No to hyperextension of the neck
  - **Position** semi-fowlers
- **Interventions**: bleeding precautions
- If bleeding: **Trache set** at bed side
- **Expected**: mild hoarseness of the voice
- **WOF**:
  - ↓ Thyroidism
  - Thyroid storm
  - Hemorrhage
  - Laryngeal nerve damage – high pitch stridor
  - Hypocalcemia
    - Accidental removal of the Parathyroid
  - Osteoporosis

D. PARATHYROID GLAND DISORDERS

HYPOPARATHYROIDISM

↓PTH
↓Ca in blood
↓ Hypocalcemia → Hyperphosphatemia >4
↓ Bradydysrhythmia
Slow and irregular heart rate
→ muscle spasm, S/Sx ↓Ca+
Comp.
tetany
Paresthesia
Laryngospasm
(DOB & dif. to speak)

Meds: Calcium gluconate IV
Ca+ supp-dairy products, salmon,sardines
Vit D supp

HYPERPARATHYROIDISM

↑PTH
↑Ca in blood
↑ Hypercalcemia → ↓pH
↑ Tachydysrhythmia
(fast and irregular)
→ weakness
Comp. = renal calculi
Osteoporosis

Meds: Diuretics – K+ wasting – it will also Excrete Ca+ BFHM
X

Calcitonin (Calcimar, Miacalcin)-nasal spray = ↑Ca+ bones & ↓Ca+ in the blood

Phosphate IV= ↑Ph in the blood ↓Ca+

E. ADRENAL GLAND DISORDERS

*hyperthyroidism – leads to heart failure if not Treated

- **ADDISON'S DISEASE**
  - "**Adrenal insufficiency**"
  - WOF= ↑ K+
    H+ acid = metabolic acidosis
  - ↓ Salt, Sugar and Sex
  - Problem: ↓ **cortisol**
    ↓
    Hypoglycemia
    Diet: ↑ CARBO
    Hallmark sign: bronze skin
    Hyperpigmentation
    Bronze pigmentation
  - Mgt: Steroids (risk for infection)-cortisol
    - Florinef- replace Aldosterone
      WOF: ↓ K+

With the 3S you can already answer the correct S/Sx

↓**Aldosterone**
↓
↓Na+ and H2O → FVD
↓
Weight loss
↑serum osmolarity

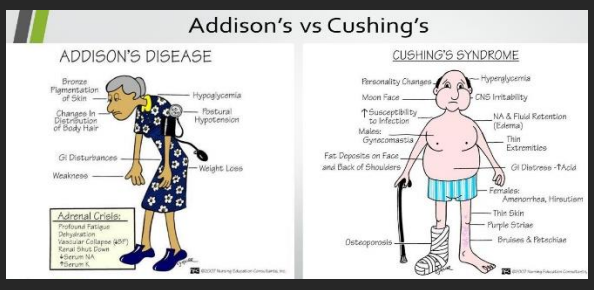
diet: ↑ Na
maintain 2g/day
no Na+ substitute
no K+ rich foods

polyuria
↓ BV & BP

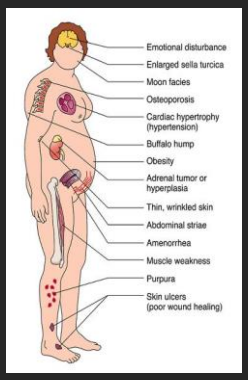
hemoconcentration

Comp.↓ Cardiac Output= **Shock**
Addisonian Crisis
↓ BP ↑ HR ↑RR, pain, Sign of LOC

Mgt: Lifelong hormone replacement therapy



- **CUSHING'S DISEASE**
  - Cushingoid appearance
    - Thinning of hair
    - Buffalo hump
    - Moon face shape
    - Supraclavicular fat fads
    - Truncal obesity
    - Pendulum abdomen
    - Thin extremities
    - Thin skin
    - Acne, hirsutism
    - Purple stretch mark / striae, ecchymosis
    - Bruises, purpura, petechiae



↓↑ Immune system
↓
Risk for infection
↑ Salt, Sugar, Sex → ↑cortisol = hyperglycemia
Some: ↓ Ca+ absorption
↓ K+
↓ H+ acid = metabolic Alkalosis
↑↑ Aldosterone → ↑Na+ & H2O

Oliguria
↓
↑BP & BV
Hemodilution-↓ serum osmolarity

FVE
↓
weight gain

- Diet: no sweets
  - ↓ Na/ maintain 2g/day
  - ✓ K+ rich foods
  - ✓ Salt substitute
- **Mgt.** Hypophysectomy – pituitary
  Adrenalectomy – Adrenal → life long Hormonal rep.

CONN'S SYNDROME

- Hyperaldosteronism
- Problem: ↑Aldosterone → ↑Na+ → ↑ BP
  H2O: initial retention
- ↓ K+ & H+ acid = metabolic Alkalosis
- Specific: ↓K+ - induce hypokalemic - nephropathy
  ↓
  Kidney cannot concentrate urine
  ↓
  Polyuriaftr
  ↓
  Dehydration → weight loss, polydipsia
- **Mgt.**: Diuretics – K+ sparing
  - DOC: SAT
    Antihypertensive
    K+ supp
    Adrenalectomy- lifelong hormone rep

PHEOCHROMOCYTOMA

- Adrenal medulla **tumor** – **WOF- hypertensive crisis 180/120 mmHg**
  - ↑ Norepinephrine and epinephrine
    - SNS hyperactive
      - ↑ BP
      - ↑ HR
      - ↑ glycemia
      - ↑ Intra-abdominal pressure = no abd palpation
      - ↑ Diaphoresis — no bend, straining
      - ↑ Headache
- **Mgt: Antihypertensive: Na nitroprusside**- control Bp if pheo is the cause
  Phentolamine
- **Surgery:** Adrenal medulla resection of tumor
  WOF: Leak of catecholamines
  -hypertensive crisis post-op
  Bilateral adrenalectomy
  - Removed
    a. A. Cortex – no cortisol and no aldosterone= ↓ BP
    b. A. Medulla – no epi and norepi
    ↓ Cardiac output → ↓ BP
    WOF: shock/ Addisonian crisis
  - Post 24° post op bilateral- prevent hypotension

DIABETES

TYPE 1:

- Auto destruction of beta cells
  No insulin
  ↑ Hyperglycemia
  cell starvation – polyphagia
  - ↓ weight loss
  - ↓ weakness

  filtered by kidneys
  ↑ renal threshold
  glycosuria → triggers osmosis leads to polyuria (DHN) then polydipsia

blood viscosity leads to sluggish blood flow
poor blood circulation
infection — slow wound healing

Mgt: insulin

Type 1_insulin dependent, juvenile onset, ketotic
Type 2_non-insulin dep, adult onset, non-ketotic

Treatment:
Type 1_DIE_diet, INSULIN, exercise
Type 2_DOA_DIET, OHA, activity

TYPE 11

- Insulin resistant → ↑ glycemia
  Weight gain: "some call starvation"
  Same S/Sx type 1

Mgt: insulin, yes to OHA only for type 2

GESTATIONAL DIABETES

- Placenta: HPL → inhibits maternal insulin pro.

✓ Diet
✓ Insulin
✓ Avoid OHA

Diagnostic test:

1. **Fasting blood glucose** – fast 10-12 hours,
   60-100, 70-100

2. **Oral glucose tolerance test** → common to preg to assess GDM: fast 10-12 hours
   Fasting baseline: 70-100 mg/dL
   30-min sample: 110-170 mg/dL
   60-min sample: 120-170 mg/dL
   90-min sample: 100-140 mg/dL
   120-min sample: 70-120 mg/dL
   a. Get the baseline blood glucose
   b. Oral glucose concentrate
   c. Get blood glucose after

3. **Capillary glucose monitoring** – random bl. sugar
   Regardless of the meal time

4. **Glycosylated hemoglobin or HbA1C**
   Normal: 3.5-6 %
   Good diabetic control: 7.5 % or lower
   Fair diabetic control: 7.6% -8.9%
   Poor diabetic control:9% or higher
   - Most reliable test
   - drug compliance
   - measure the amount of glucose inside RBC last 2-3 months

DIABETES MELLITUS (risk factor**)**- modifiable

- ↑ cholesterol – diet
- ↑ BP

Most significant RF - Obesity – more fatty tissue more resistant to insulin

- Non-modifiable
  - > 45 y.o.
  - Family history
  - Gestational DM – macrosomia baby
    - Common African- Americans

- Inlets of langerhans
  1. Alpha cells – glucagon = ↑ blood glucose
  2. Beta cells- insulin = ↓ blood glucose

ACUTE COMP. OF DM

- happens suddenly

1. **Hypoglycemia** cause of ↓ food or exercise
   - Overdose of OHA/insulin

- Stages:

a. Mild – 60-40 mg/dL triggers ↑epi
leads to diaphoresis, palpitations, nervousness, numbness, hunger leads to inc. HR leads to tremors
Mgt. Foods- 10-15 g CHO

-b. Moderate- 40-20

- CNS sx
  - Headache
  - Slurred speech
  - Blurring of vision
  - Dizziness
  - Drowsiness
  - Double vision
  - Irritability & inability to focus

Sx like a DRUNK person

-Mgt: same Food

-c. Severe: < 20
- patient not conscious
- seizures

- Mgt.: glucagon
D50W

2. **DKA**- type 1 → no diaphoresis
No insulin → severe hyperglycemia 300-800
↓ Dehydration → ↓K, shock, seizure
Blurring of vision
Severe cell starvation
↓
Fat metabolism
↙ Ketones
*Fruity / acetone Odor breath
↓
Can cross blood Brain barrier
↓
Altered LOC
↓
Coma

↘ fatty acids → metabolic acidosis
↓
Nausea
Vomiting
Abd cramps

Compensate Kussmaul's breathing
↓
lead to respi.alk.

DKA & HHNS_DHN

3. **HHNS – Type 2**
   - lead to severe hypoglycemia 600-1200
   ↓
   blurring of vision- common among 3 comp
   ↓
   Dehydration
   ↓
   ↓ K+, shock, seizure

Mgt.: DKA and HHNS
-regular insulin IV
-fluid replacement, isotonic

CHRONIC COMP. OF DM

Macrovascular
Diabetic foot → CVA ← MI/heart attack

Microvascular
↓
Retinopathy
↓
Nephropathy
↓ Sensation/numbness
ESRD

Foot care:

Avoid – cross legs
- Heat pads (sore feet)
- Lotion in between toes
- Ill-fitting shoes
- Half size larger (cause blister)
- ✓ Fit snugly (shoes at pm)
- ✓ Cut nails- straight across, NO angles
- ✓ Inspect feet & shoes daily
- ✓ Cotton socks

Mgt.

1. Diet - ↑ fiber complex CHO no bacon = fats

Exchanges	Sample Lunch #1	Sample Lunch #2	Sample Lunch #3
2 starch	2 slices (CHO)	Hamburger bun	1 cup cooked pasta
3 meats	2oz sliced turkey(CHON) & 1 oz low fat cheese	3 oz lean beef patty	3 oz boiled shrimp
1 vegetable	Lettuce, tomato Onion	Green salad	½ cup plum tomatoes
1 fat	1 tsp mayonnaise	1 tbsp salad dressing	1 tsp olive oil
1 fruit	1 medium apple	1 ¼ cup watermelon	1 ¼ cup fresh strawberries

2. Exercise - before, during and after walking inform Dr.
   - ✓ Capillary blood glucose
   - If CBG > 200 & ketones in urine (green-ketos tix)
   - No exercise
   - Before and after – eat snack
   - ↓ Insulin requirement so ↓ insulin dosage –exercise

4. Insulin- Rare in Love

peak → hypogly peak → snack

Rapid "logs" = 1° = 10-15 min before meals

Regular "R" = 2-3° = IV clear consistency N

Short acting DKA, HHNS

Intermediate = 6-12° = cloudy N

"N" lente, NPH

Long Acting = 12-16° =mimics the basal glucose

"Ultra" Ultra Lente control

Very long = 24° =do not mix with other

Lantus/glargine insulin

✓ Room temperature

✓ Inside the ref up to 30 days

X Sunlight

X Freezer

Always check manufacturer's expiration date, which is only good if the bottle is closed//once opened it expires 30 days! Make sure you write the date_exp/date_open

Mixing: Always clear before cloudy

Test glucose

Insulin

Eat

Mixing insulin
NR_NPH + Regular (air injection)
RN_Regular + NPH (withdraw)

- Give insulin 1st before eating
- Sick day rule do not stop insulin continue cause ↑BG
- Rotate sites or move ½ - 1" to prevent lipodystrophy
- Abdomen- preferred sites

Common types of Insulin

Type of insulin	Onset	Peak (hour)	Duration (hours)
Rapid-acting			
Lispro (humalog)	15 min	½- 1 ½	4-5
Insulin aspart (novolog)	5-10 min	1-3	3-5
Short- acting insulin			
Regular (Humulin R, Novolin R)	½ - 1 hour	2-4	5-7
Intermediate-Acting			
NPH (Humulin N, Novolin N)	1-2 hours	6-14	24
Lente (Humulin L, Novolin L)	1-3 hours	6-14	24
Long-Acting			
Ultralente (Humulin U)	6 hours	18-24	36
Insulin glargine (Lantus)	------	------	24
Premixed Insulin			
70%NPH/30regular(Humulin70/30)	½ -1 hr	2-12	18-24
50%NPH/50regular(Humulin50/50)	½ hr	3-5	24
75%lispro protamine/25% lispro	10-15min	1-6	24

Complications:

1. **Dawn phenomenon**- results from a nocturnal release of **growth hormone** which may cause blood glucose to begin to **rise at around 3 am**
   - **treat** with **evening dose of immediate insulin** at around 10 pm
2. **Somogyi Phenomenon- rebound phenomenon** that occurs during the initial period of blood glucose control; develops at peak insulin times and during the night.
   - Normal or elevated glucose at bedtime then decreases at 2 am to 3 am to hypoglycemic levels and a subsequent increase occurs at a result of **counter regulatory hormones** (GH & catecholamines)
   - Treatment includes decreasing the evening dose of **intermediate** acting insulin or increasing the bedtime snack.
3. **Insulin waning**- progressive **rise** in blood glucose **from bedtime to morning**
   - Treatment includes increasing evening dose of **intermediate** insulin or **long acting** insulin or giving a dose of **insulin before the evening meal**

ORAL HYPOGLYCEMIC AGENTS

- Not an insulin
- No to Type 1
- No to Gestational - terratogenic

SULFONYLUREAS – type 2, stimulate insulin rel.

- Avoid alcohol – facial flushing

Acethexamide (Dymelor)
Chlorpropramide (Diabinese)
Glimeperide (Amaryl)
Glipizide (Glucotrol)
Glyburide (DiaBeta, Micronase)
Tolazamide (Tolinase)
Tolbutamine (Orinase)

NONSULFONYLUREAS – delay the conversion of CHO into sugar ALL

Alpha glucosidase Inhibitor
Acarbose (Precose) – take this 1st bite of 1st meal
Miglitol (Glyset)

Biguanide
Metformin (Glucophage)-b4 giving check kidney Funx

Meglitinide- newest – stimulate insulin release
Nateglinide (Starlix)
Repaglinide (Prandin)

Thiozolidinediones- help manage type 2-↓insulin resistance. b4 giving check Liver Funx test
Pioglitazone (Actos)
Rosiglitazone (Avandia)

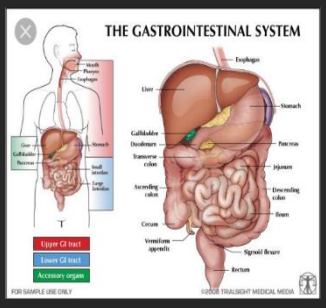
GASTROINTESTINAL SYSTEM

ANATOMY:

Mouth- mastication

- CN5- trigeminal nerve
- Ptyalin → starch → sugar → bolus

Esophagus – passageway of bolus



Lower esophageal sphincter or cardiac sphincter Defective = Disorder (GERD or Heartburn)

Stomach – digest bolus further turns into Chyme a partially digested food

- Parietal cells – produce hydrochloric acid
  - Intrinsic factor- helps absorb Vit. B12
    Brain function help RBC prod.
- Temporary storage of food
  - Normal- 30 min-1 hr in the stomach
- *Gastrectomy – leads to Complication- Pernicious Anemia or dumping Syndrome

Small Intestine – 2-4 hrs

- Nutrients absorption
- Needs the help of accessory organs for absorption.
  1. Liver – produces bile
  2. Gall bladder- stores bile, pass thru common bile duct
  3. Pancreas – made up by acinar cells
     produces enzyme juices
     a. Amylase – helps digest CHO
     b. Trypsin- helps digest CHON
     c. Lipase – helps digest Fats

Parts:

a. Duodenum
b. Jejunum
c. Ileum

Large intestine / colon

- H2O absorption and stool formation

Part I : Cecum
II : Ascending Colon
III : Transverse
IV : Descending Colon
V : Sigmoid Colon
VI : Rectum

- GI is not sterile, so clean technique can be used

Dx Procedure

1. Upper GI
   - Esophagus
   - Stomach
   - Duodenum

*prob of pancreas leads to mal-absorption

2. Lower GI
   - Colon

Procedure	Contrast medium	Posi-tion	Pre	Post	Comp
Radiographic Upper GI series *all GI series needs fluoroscopy helps the dr see real time images needs x-ray and barium	Barium swallow: Chalk-like mixture	High Fowlers	NPO- 6-8 hrs	S/E: Constipation Chalk like stools, NI- inc OFI and fiber – wheat, oats, rice except white, beans, peas, bron, sun dried tomatoes and green leafy veg. Laxative per drs order	Anaphylactic shock **WOF: report** urticaria, pruritus, facial flushing, throat swelling DOB
Lower GI series	Barium enema	Sim's (L)	3 days prior to test clear liquid diet NPO- 6-8 hrs During:change position for enema to quote the colon	Same for upper GI series	Same for upper GI series
Scopy – direct visualization Upper GI: @ mouth = Endoscopy, Gastroscopy, Duodeno-scopy		Sim's	NPO 6-12 hrs Local anesthesia – lidocaine spray Medazolam IV- sedate the pt, suppress gag reflex Atropine – dec. Salivation , helps relax smooth muscle	Wait for gag reflex to return – Normal 2-4 hrs if **> 4 report**	Perforation **WOF: Shock**
Lower GI		Sim'	NPO 6-	Check flatus	Perforation

series at rectum Colonoscopy Sigmoidoscopy – rectum and sigmoid only		s	12 hrs for colonoscopy For sigmoidoscpy no NPO cleansing enema only		**WOF: Shock**

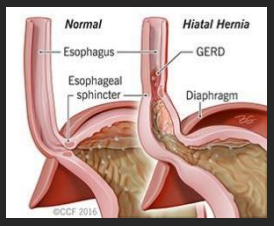
GASTROINTESTINAL DISORDERS

I. UPPER GI DISORDERS

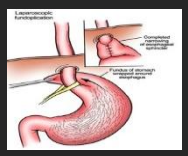
A. GASTROESOPHAGEAL REFLUX DISEASE (GERD)/ HIATAL HERNIA

Inc CHO
low CHON

- Hallmark sign – heartburn
- Cause: defective cardiac sphincter so stomach contents leaks upward (esophagus/chest area)
- Other risk: Aging
  - Caffeine (cola, coffee, chocolates)
  - Alcohol (Beer)
  - Smoking/spicy foods
  - Hot foods/high fat foods
  - -tomatoes (products) & citrus foods – inc. acid
  - -Dairy products (milk) alkaline – aggravates acid production to maintain balance



- Hiatal hernia – cause by obesity, herniated thorax, weak diaphragm
  - Surgical Mgt: Fundoplication (stomach fundus – map esophagus which strengthen the sphincter)



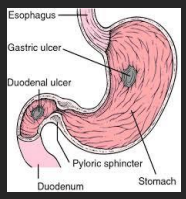
S/Sx:

1. **Hydrochloric acid back flow** – heartburn or pyrosis; **Mgt**. No CASH or other foods that will trigger it & upper GI tract meds
2. **Bloated/fullness – Mgt** sips of H2O only, small frequent meals
3. **N/V – Mgt.** Anti-emetics Drs order, Reglan (Metoclopramide), Zoplan (Ondansetron)
4. **Ptyalism (Inc. Salivation) Mgt.** Candies, gums, toothbrushing
5. **Dysphagia – Mgt.** Thickened food and fluid, flex the neck
6. **Hematemesis – Chronic sign**, Positioning: high-fowlers, 2-3 pillows

B. PEPTIC ULCER DISEASE

- stomach lining has wound (mucosa)
- Bleeding is expected
- **WOF: Bleeding** so monitor Hgb & Hct
- **Complication: Perforation**- severe bleeding, boardlike abdomen, shoulder pain (hit phrenic nerve)
- **Mgt.:** GI meds, avoid irritants, CASH and other foods
- **Types:**

1. **Gastric ulcer-(**stomach**)** acid production normal/decrease.
   - Cause: long term (NSAIDS) resulting to dec. mucosal lining in the stomach
   - Pain during meals → relieve: vomiting → with HCL & hematemesis
     - ↓ K+
     - weight loss



2. **Duodenal ulcer/ Stress Ulcer**
   - Cause:
     - A. Stress
     - B. H.pylori
     - → alter HCL -inc (hyperacidity)
     - ↓ 2 antibiotics and & 1 upper GI med
     - ↓ damage mucosa (duodenal part)

- Pain- absent during eating, or pain relieve during eating, occurs 2-4 hours after meals
  - ↓ Overeating
    - Weight gain
    - add further injury At duodenum (melena)

AC- before meals
PC- post sebum/after meals

Medications	Action	Best time to take	Examples	Side-effects
Antacids	-buffers -neutralizes HCL acid	1-3 hours **after**	1.Al hydroxide (amphogel) 2.Mg hydroxide (milk of magnesia) 3.MAALOX – Combination of 1&2 –preferred 4.Ca carbonate	-constipation (*ala popo) -diarrhea (*mg popo) -constipation
H2 receptor blockers	↓ HCL acid	**with** – may cause GI upset	"-tidine" Cime- Rani- Famo-	Common: **V**omiting **A**norexia **N**ausea **D**iarrhea **A**bdominal cramps
Proton-pump inhibitors		**before** 30min-1 hr	"-prazole" Ome- Lanso-	VANDA still

"After With Before Before With"

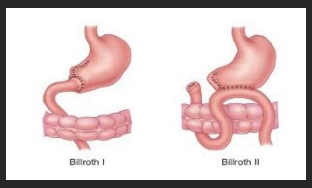
			Isome- Panto- -sustained so do not crush, if suspension-mixed with apple juice/sauce Avoid hot it will precipitate	
Sucralfate -mucosal protectors	Coats an ulceration	**before** 1 hr	Sucralfate (Carafate)	Constipation
Cytotec -mucosal protectors	↑ Mucosal lining	**with**	Cytotec (Misoprostol)	Can cause contraction, no to pregnant pt can cause birth defects and premature birth

GASTRIC SURGERIES:

1. **GASTRECTOMY:**
   - **TYPES:**

   a. **Total – WOF: pernicious anemia or dumping syndrome**

   b. **Partial – antrum** – end of the stomach with pyloric sphincter so with gastric remnant



Types:

b.a Billroth 1 (gastroduodenostomy)

- gastric remnant anastomosis connect to duodenum

b.b. Billroth II (bypass gastric surgery/ gastrojejunostomy) – gastric remnant anastomosis connects to jejunum

WOF: pernicious anemia or dumping syndrome

2. **VAGOTOMY –**removal of vagus nerve – CN10 which triggers the parietal cells to produce HCL
   - Done – post partial gastrectomy
   - **WOF: pernicious anemia or dumping syndrome**

Dumping Syndrome
__right way, fast rate
Hiatal Hernia __wrong way, correct rate

COMPLICATIONS:

1. **DUMPING SYNDROME**
   - **no stomach so no storage**
   - **rapid gastric emptying** which leads to inc. bulk of undigested foods in the small intestine (**bolus** do not turn into chyme) so inc. **undigested CHO** signals the **pancreas** to release **insulin** leads to **hypoglycemia** no sweets.
   - **rapid gastric emptying** which leads to inc. **peristalsis** can cause **diarrhea** leads to **DHN**, weight loss and fatigue
   - **S/Sx:** bloated, N/V
   - **Early Mx:** diaphoresis, dizziness, diarrhea, and ↑HR

Mgt.

- Small frequent meals, Sips of H2O
- Anti- emetics (raglan/zofran)
- No fiber intake/ cash and dairy products
- Inc. OFI
- **GOAL:** slow gastric emptying – no CHO/ ↓CHO,↑ CHON,↑ FAT (slowly digested)
  - No drinking with meals
  - Do not restrict fluids
  - During meals: low fowlers
  - Post meals: supine for 30min to an hr & no ambulation

2. **PERNICIOUS ANEMIA**
   - **No stomach** → no parietal cells → no intrinsic factor → no Vit B12 affect the brain
   - Affect the brain = numbness/paralysis
   - Affect RBC – macrocytic anemia/SOB
   - **Hallmark sign: beefy red tongue**
   - **Mgt.** B12 IM for lifetime
   - **Dx:** Shillings test - Normal 8-40 %

NASOGASTRIC TUBE – post gastric surgery- place NGT to prevent post op paralytic ileus until bowel tx has returns –check bowel sounds

Insertion:

- **Position:** High-fowler's
- **Measure:** tip of the nose to earlobe to xiphoid process then mark
- **Assess:** Patency of the nares, choose the most patent
- **Lubricate:** KY jelly, Lidocaine gel
- **Insert:** in the nose once reach nasopharynx hyperextend the neck/tilt the neck once reach the oropharynx flex then instruct patient to swallow (straw) then instruct further till the mark is reach.
- **Check:** placement – X-ray – most accurate
  - Instill air & use stet –check woosing sound
  - Gastric content – check gastric pH-1-5

pH 7 either lungs or small intestine

Feeding/Giving Medications:

- **Guidelines** – enteric, sustained, time released do not crush or given thru NGT
  - Buccal/sublingual med give as prescribe
  - Give drugs separately
- **Position**- semi-fowlers
- **Assess** – bowel sounds (+), try to offer clear liquid if tolerated notify Dr. then assess placement
- **Check**- residual volume **< 100 mL Normal**
  if >100 mL **hold**= Risk for Aspiration
- **Next** – flush 30 cc distilled H2O then feed/med

WOF: abdominal cramps (+) – **HOLD** the feeding until pain subsides then reflush 60 cc distilled H2O

Types of tube:

1. **Salem sump tube (Gastric)**
   - Double lumen tube
   - For continuous & intermittent suctioning
2. **Levin tube**
   - Can only handle intermittent suctioning

***If** the tube is inserted to machine

WOF- over suctioning of gastric juices

↓ H(acid)- metabolic alk. ↓ K+

II DISORDERS OF THE ACCESSORY ORGANS

A. LIVER (RUQ)

- Function – produce bile
  - Metabolism of CHON to ammonia
    - (waste) urea excreted in urine
    - if not converted by the liver reach to the brain leads to hepatic ence-phalopathy
  - ADEK absorption – K is for the clotting factor
  - Helps detoxify drug taken
- **Diagnostic test: liver biopsy** – just a small tissue tests the presence of liver dse/damage or cancer

  Pre-op: assess the prothrombin time – reflect the ability of the patient's blood to clot

  Local anesthesia- used

  Position: L side lying/supine with R hand under head

  During: Inhale, exhale hold breath for 5-10 sec (puncture area) to prevent puncture of the lungs

  Post-op: R side-lying for 4 hours for pressure to prevent bleeding

HEPATITIS

– liver inflammation

A & E- fecal route → standard precaution

B, C, D, F, G – blood borne

Laennec's Hepa – cause is alcohol

Hepatotoxic drugs: TB drugs, birth control pills, NSAIDS, OHA

Phases:

1. **Pre-icteric phase** – infective phase & precautionary measures strictly enforced
   - 2 weeks expose to virus
   - Significant liver inflammation- pain RUQ
   - Flu-like Sx – fever, loss of appetite, N/V, body malaise
   - Liver function test - ↑ ALT & ↑AST

     Normal: ALT (Alamine amino transferase)

     Or SGPT – men: 10- 55 U/L

     Women: 7- 30 U/L

     AST (Apartate amino transferase)

     Or SGOT– men: 10- 40 U/L

     Women: 9- 25 U/L
2. **Icteric phase** – 120 days
   - Ass. with RBC lysis

     ↓

     Unconjugated bilirubin –liver biproduct
     - bilirubin = Gives N color to the urine, stool, bile

     Conjugated bilirubin -liver biproduct
   - If liver is damage inc. unconjugated serum which deposits in the skin initial= pruritus= jaundice; if in stools –clay colored; if in urine – tea-colored

     Cholestyramine (icteric phase too) - acts as a bile acid sequestrant

     S/E constipation; bile acid is the component of bilirubin that causes Pruritus

     A/E: dec. Absorption of ADEK so assess signs of bleeding

GOAL: diet ↓ CHON ↑CHO ↓ FATS

Diet-Opposite with Dumping Syndrome Same with GERD

3. **Post-icteric phase** – 6 months
   -* generalized fatigue
   -*cessation of Sx
   -**Mgt. Interferon Immunoglobulin**
   - not a cure just prevents worsening
   - not lifetime = 3-5x/week SubQ

LIVER CIRRHOSIS

- Cause: chronic alcoholism

Chronic liver dse./ hepatitis or fatty liver leads to scarring of the liver so a formation of connective tissue called fibrosis for repair. Fibrosis cause obstruction of portal vein circulation leads to

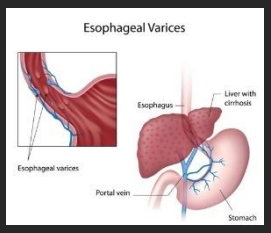
Portal hypertension → esophageal varices
↓
X ADEK
Risk for bleeding, Petechiae, purpura, Spider angioma (micro bleeding)

↓ oncotic
↓
ascites

ammonia not converted to waste pro. Urea so cross blood brain barrier
↓
Hepatic encephalopathy

PORTAL HYPERTENSION

1. **Esophageal varices**
   - **Early sign ↑ HR**
   - Fibrous (connective tissue)
   ↓
   Obstruction of PVC (Blood)
   ↓
   Esophageal veins dilated
   ↓
   Rupture
   ↓
   Bleeding
   ↓



Airway obstruction/shock = **PRIO**

Mgt.: vasoconstrictor – vasopressin if w/o rupture
WOF: v/s BP
If with rupture – bleeding use **Sengstaken Blakemore**- scissors should be at bedside in case emergency deflate; prov pressure prevents further bleeding N 25-40mmHG anchors- inflate 100-200 cc of air
WOF: over suctioning of gastric juices
↓H- metabolic alk. & ↓K+
* vasopressin- DOC when sclerotherapy is CI

2. **Ascites**
   - Cause by portal hypertension leads to dec. oncotic pressure (pulling) & hydrostatic pressure (pushing) in the peritoneal space and peritoneum fluids cause dyspnea
   - **Mgt. Diuretics**
   - **Albumin IV**- oncotic pressure
   - Last resort- **Paracentesis** –relief dyspnea, drains 2-3 L/H2O,
     prior: instruct pt to void
     best position: sitting/ supine, **use** local anesthesia
     GOAL: v/s- check BP before, during and after; **WOF**: BP ↓
   - *Neomycin* is use for prophylaxis to prevent peritonitis
   - Albumin IV as ordered= pull back H2O

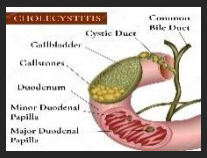
3. **Hepatic encephalopathy**
   - Ammonia not converted to urea
     ↓ **(**liver cirrhosis**)**
     Remains as ammonia
     ↓
     Cross blood brain barrier

Blood Brain Barrier
↓
↓LOC
↓
Coma
↓
Death

Spinal cord
↓
hyperreflexia
↓
Asterixis (HALLMARK)
Mgt. Get rid of the ammonia

Use: Lactulose – osmotic laxative w/c excrete ammonia with stool
Neomycin = remove Normal GI flora bi product of ammonia

B. GALLBLADDER



✓ **CHOLELITHIASIS** – stone in G.B
- Risk factor- **5F's**
  Female, Fat, Forty, Fair
  Fertile – inc. estrogen & cholesterol
- Obstruction in the common bile duct

↑Bilirubin serum (conjugated Na+)
↓
Deposits in skin (pruritus, jaundice), Stool (clay-colored), Urine (tea-colored)

Backflow of bile
↓
Irritates
↓
(RUQ) Inflammation *(cholecystitis)↓

diet: ↑fat intake (continuous) w/c causes R shoulder scapula pain called **Boa's sign**

- **Best Mgt.** cholecystectomy

Open: - abdomen open
- takes time to heal
- Inc. Risk for infection

Close: lap
- smaller, faster healing
- insufflate CO2- irritates phrenic nerve - S/E shoulder pain

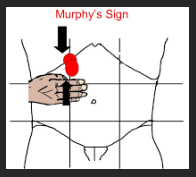
Post-surgery: T-tube stent attached for bile to drain temp. allow surgical site to heal

*Normal bile drain is 300-500 cc for 24 hours

*meds: **Ursodiol**= asymptomatic
- dissolves gall stones &↓ fat diet

CHOLECYSTITIS

Murphy's sign- Palpate RUQ then instruct patient to inhale then if the patient stop breathing momentarily → pain (+)



PRIO – gallbladder problem – pain – DOC Demerol (meperidine)
Avoid: Morphine – cause spasm sphincter of ODI to the common bile duct

C.PANCREAS

PACREATITIS

- made of acinar cells releases enzyme
- Cause: alcohol → injure acinar cells
Cholelithiasis

↓Enzyme in the small intestine

Won't absorb nutrients

Malabsorption of Fats, CHO, CHON

Steatorrhea

Mgt. Enzyme juice substitute =effective if with steatorrhea
- Pancreatin → with meals
- Pancrealipase

= **Somatostatin** – treatment for acute pancreatitis
Inhibit release of pancreatin enzyme

injure acinar cells

↑enzyme in the pancreas

autodigestion → bleeding → **Cullen's sign** (umbilical area)

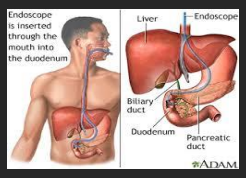
Shock-Mgt fluid rep. Isotonic sol.

LUQ pain

Grey turners -bleeding in flank areas

Mgt. Demerol (Meperidine)

- Associated with HYPOCALCEMIA = PRIO so give Ca Gluconate → WOF: laryngospasm
- Fat- lipolysis – biproduct fatty acids gets Ca+ from blood form Ca+ soaps



Diagnostic test: ERCP

Endoscopic Retrograde CholangioPancreatography

Hint: Assess

Common bile duct — Pancreas — Gall bladder

- Scoped mouth for visualization
  - NPO 6-12 hours
  - Local anesthesia
  - Atropine
  - Midazolam IV
- Pre- iodine: contrast
  = assess if allergic to shellfish
- Post- wait for gag reflex to return 2- 4 hours
  = > 4 hours – risk for aspiration
- **Mgt.** Removal of gall stones (CBD)

Dx
- ↑ amylase
- Lipase serum
- ↓ Ca+

Surgery: Pancreatic surgery = get rid of dead cells
Cholecystectomy
= complication- kidney failure so
WOF: shock or oliguria

III.DISORDERS OF THE LOWER GI TRACT

A. APPENDICITIS

Cause: dropped fecalith, seeds

↓

Bacteria will proliferate

↓

infection

S/Sx. Fever
↑ WBC

inflammation

↓

Pain (RLQ) radiate to McBurney's point

Psoas Sign = lie: R thigh flexion towards the hips upon extension there will be pain

Rovsing's Sign = elicit- palpate the LLQ pain in RLQ

WOF: sudden relief of pain it means – RUPTURE

Comp. Peritonitis = significant fever >101°F (38°C); chills, boardlike, rigid abdomen

Markle's sign- (check for peritonitis) you stand on one foot and let the patient drop R heel/toe there will be jarred landing with localized pain.

Prevent rupture = no enema, laxative, fiber rich foods, CASH, heat compress/pads

Avoid: Pain meds – mask

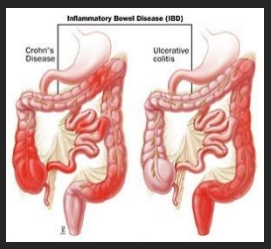
Best Mgt. Appendectomy- general anesthesia, NPO

B. INFLAMMATORY BOWEL DISEASE

- Affect small/large intestine
- Associated with family history
- Autoimmune- best DOC – corticosteroids

Comparison	Crohn's disease "regional enteritis"	Ulcerative Colitis
Location affected	Small and large intestine	Colons
GI lining Affected	All 4 linings – mucosa, submucosa Muscularis Serosa	Mucosa only
Presenting S/Sx	Hallmark: fistula, skip	Ulcer, continuous
Common site	Ileum	Rectum
Bleeding	None	Expected: fresh blood stool- hematochezia
Diarrhea	5-6x a day	10-20x a day

- Both- prone to DHN
- Check Inc. risk colon cancer
- DOC: corticosteroid
- Antibiotic – Sulfadiazine
- Antidiarrheals
- Inc OFI
- Diet: ↓ fiber
  ↓ Residue (broiled meat, boiled egg, tea)



DIVERTICULAR DISEASE – only affect colon/large intestines

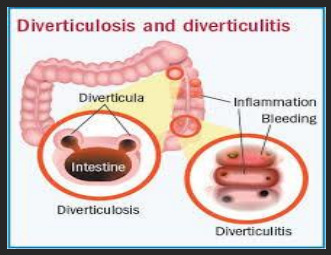
***DIVERTICULOSIS**

= outpouching of colons, problem with muscularis and serosa

= risk factor:

- ↓↓ Fiber/residue
- ↑↑ meat
- Aging
- Trapped fecalith/seed
- Asymptomatic

= Dx: Barium enema
Colonoscopy
CT scan



= Goal: prevent diverticulitis or comp. Diet inc. fiber and residue

***DIVERTICULITIS** – inflammation and diarrhea

= infection – fever and inc. WBC

-Inflammation= pain LLQ

Opposite _appendicitis

-persistent abdominal cramps

-diarrhea – so no fiber/residue -Diet

-rupture – comp. Peritonitis further sepsis

-best mgt. – resection= reg. Stoma

Stoma- bacterial prophylaxis: **neomycin**- no infection

Expected post-op color: beefy red/brick red

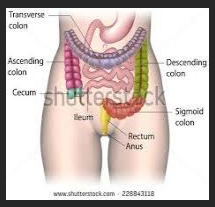
2 weeks – pinkish purple- REPORT!!!

TYPES OF OSTOMY

-ILEOSTOMY "ileum"

- stool- watery
- Risk for skin breakdown (infection)
- Risk for DHN - ↑OFI ↓ fiber
- Drain pouch- continuous
- ODOR- none
- Swim- avoid

-COLOSTOMY "colon"



-Ascending colon- watery

-Transverse colon- semi-mushy

- Descending colon- Mushy
- Sigmoid colon – Formed
- With odor
- Diet- no gas forming foods to lessen the smell- yogurt, parsley, beets
- Okay to swim
- Colostomy- sched (water resistance pouch)
- Functional – flatus (bag inflated)

COLOSTOMY IRRIGATION PROCEDURE

- Once a day commonly morning

1. Fill container with 500-1000 cc tap H2O
2. Hang it at IV pole 12-18 inches
3. Put on clean gloves
4. Lubricate then insert 2-4" inside core
5. Irrigate: 5-10 min, > 10 min- cause abd cramps STOP till pain subside
6. Wait for stool evacuation 30-45 min

Cleanse! Empty pouch 1/3 full every 4-6 hours

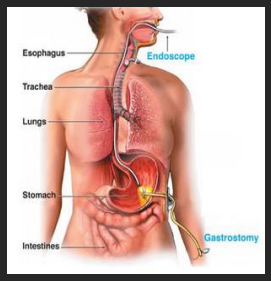
Discard pouch – every 5-7 days

Patient is ready –

a. Patient is looking at the stoma
b. Ask about the equipment
c. Return demo/active participation

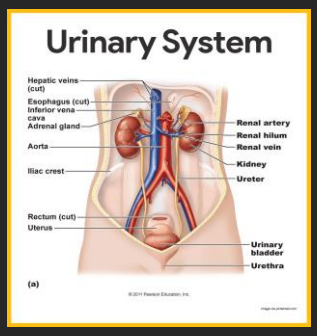
Percutaneous Endoscopic Gastrostomy (PEG)

- Purpose: long term feeding
- Indicated: ALS, Alzheimer's
- Order:



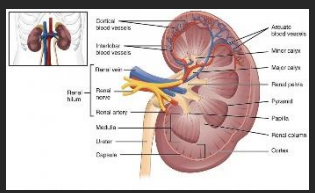
1. Explain the procedure
2. Wash hands
3. Provide privacy
4. Assemble the materials
5. Position: Semi- fowlers
6. Wear clean gloves
7. Place towel on patient's abdomen
8. Check for signs of infection around the area
9. Auscultate bowel sounds
10. Unclamp and aspirate gastric residual vol. < 100 mL and re-instill
11. Pinch the proximal end of feeding tube prevent air from entering
12. Flush 30 cc of distilled H2O
13. Feed
14. Reflush 60 cc

GENITOURINARY NURSING



Anatomy & Physiology of the Renal System

- **Kidney**- bean shape, brownish red color, locate in a costovertebral angle retroperitoneally
  - **Functions**
    - **B**one function – synthesis of Vit. D for Ca+ reabsorption
    - **B**p regulation – RAAS activation if ↓BP
    - **E**lectrolyte – Na+ K+
    - **E**rythropoietin – erythropoiesis – RBC production in response to dec. O2 in the blood
    - **A**cid base balance – H+ regulation/ acidic
    - **N**itrogenous waste excretion, food rich in Nitrogen is CHO**N** (protein)
  - 1 kidney = 1 million **nephron**- functional unit of the kidney
    - **F**iltration
    - **A**bsorption
    - **S**ecretion
    - **U**rination



- Flow and parts – **bowman's capsule; glomerulus** – initial filtration of blood; GFR (glomerulu filtration rate) test how kidney function, normal 100-120 mL/hr; **loop of henle – descending structure**– proximal convoluted tubule, reabsorption/secretion**, ascending structure** – distal convoluted tubule, aldosterone-parathormone (PTH)- goal is to inc. Ca+ level in the blood or absorption Ca+; **collecting duct; renal parenchyma: adrenal cortex** – outer part , **adrenal medulla** – inner part; **renal pelvis** – urine collected, enhouses the renal artery & vein**; ureters; urinary bladder** – storage , normal 500-1000 mL**; Urethra** – female 3-4 inches

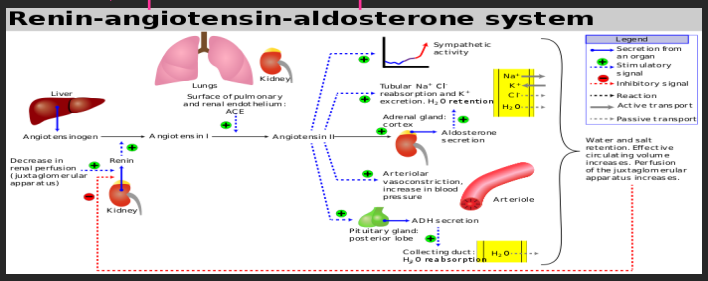
Acid- base balance

- The kidneys will **excrete H+** in response to a **decreasing blood pH**; they will **reabsorb H+** in response to an **increasing blood pH** to maintain homeostasis
  - ↓pH (acidic) – excrete H+
  - ↑pH (alkalotic) – reabsorb H+

BP REGULATION: THE Renin- Angiotensin-Aldosterone System **(RAAS)**

= ↓BP – activate RAAS

1. Liver: Angiotensinogen (plasma protein)
   ↓ Kidney: Renin (enzyme)
   Angiotensin I (not potent)
   ↓ Lung (ACE)
   Angiotensin II (potent)- function binds with A1 receptors of blood vessels – potent vasoconstrictor if activated - ↑BP
   Stimulate aldosterone production – enhance Na+ & H2O → ↑blood volume = ↑BP



Mgt. I. ACE inhibitors "-pril"

- **A**n hour before meal
- **C**ough, dry and persistent → A/E so
- **E**dema, periorbital & facial
  - WOF: ↑K+
  - **Mgt**. No salt substitute and K+ rich foods

Prob. **B**- ↓Ca+, bone prob &↑BP

E - ↑K+

A- metabolic acidosis

M – Azotemia – accumulation of Nitrogen

PHYSIOLOGY OF THE BODY'S ELECTROLYTES

***Potassium** = normal 3.5 – 5.1

- control muscle, heart and nerves
- ↓K , ↓DTR (+1) – muscle paralysis
  ECG = **U** wave
  St depression
  T wave inversion/flat

↑K – early - ↑DTR (+3) –
late muscle weakness - ↓DTR (+)
ECG = St segment depression
T wave peak/tented/tall
Interval of PR prolong >.20 sec

-Mgt-diuretics
K+ wasting – acid partner with H+
BFHM

For Hypo _DOC: kalium durule (KCl supp)- this is acidic so given after meal
Give K+ rich foods- PABOWS

K+ sparing
SAT
WOF: ↑ K+

For Hyper _DOC: Kayexalate – oral (mix with H2O)
Retention enema-retained about 30 min for absorption
S/E diarrhea-monitor bowel function

***Sodium** – blood volume & BP

↓ Na+ → ↓H20 → ↓BV → ↓ BP
↳ FVD

Mgt. Canned goods (bouillon)
Diet: ↑ Na+ intake

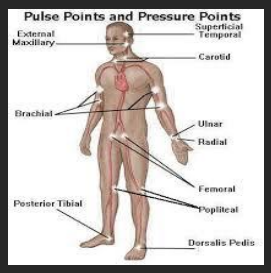
↑ Na+ → ↑H20 → ↑BV → ↑BP
Expected - ↑BP – edema

Report: =. Brain = Cerebral edema - ↓ LOC
↑ ICP – widened pulse pressure
= Heart – CHF signs – non-productive cough, crackles – hypertension, bradycardia, Bradypnea, ↑temp

INTRAVENOUS PYELO GRAM
Vein kidney visual with dye

Aka: excretory urography

- Can detect presence of **stone** for suspected urolithiasis or nephrolithiasis
- Position: Supine
- Injected: Brachial vein
- Pre- Assess: check history of allergy and NPO 6-8 hours – can cause metallic taste lead to N/V lead to aspiration
- Post: Inc OFI and fiber intake – dye causes constipation if 2-3 days- no stool refer! – Dr's order laxative
- WOF: anaphylactic shock/rash/urticaria
  S/Sx DOB, facial flushing, throat swelling
  DOC: Epinephrine – IM / IV – dilute



RENAL ANGIO GRAPHY
Artery with dye

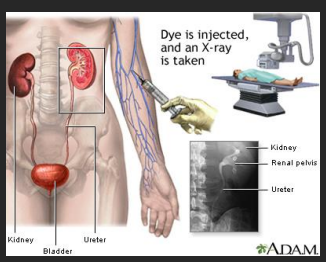
- Detect **clot** in artery
- Position: Supine
- Use: iodine-based dye
- Insertion: femoral artery
- Anesthesia: local
- Pre: Assess history of allergy and check peripheral pulse (popliteal, dorsalis pedis) weak delay/defer, NPO – 6-8 hours
- Post= bleeding straightening of legs at least 6 hours, apply pressure, sand bags- 10-30 mins longer if with anticoagulant/antiplatelets,
  Absent distal pulses **REFER**!!!

DISORDERS OF THE KIDNEY

RENAL FAILURE

* **Acute** – rapid/reversible
- prognosis is good
- recovery – 2 years
- **Types**:
  - Pre-renal- all problem is related to *heart/circulation*
    Ex. Burn, DHN, Hypovolemia
    Phases:
    a. Oliguric phase- <400mL/day, fluid retention leads to inc. BP, edema, ↓LOC.; **prio**: ↑K+
    DOC: Kayexalate, Mgt. NO CHON, ↑Carbo, NO K+ rich foods, salt substitute, limit fluid and Na+ intake 0.5 – 0.8 L/day

Urinary fluid retention
↓
↓ GFR < 100 mL/day
↓



↑ BUN & Crea (Azotemia)
Normal: 10-20 | 0.6-1.2
↓
↑Urea (cross blood brain barrier)
↓
Renal encephalopathy
↓
S/Sx is ↓ LOC

b. Diuretic phase – dieresis = >5 L/day
- *initial sign of recovery*
- Priority: DHN so ↑OFI

c. Recovery phase – improvement of renal function – normal BUN & Crea

- Intra-renal – *kidney problems*
  Ex. Nephrotic syndrome- pts taking nephrotoxic agent such as gentamycin (aminoglycosides)

- Post-renal- *Bladder problems/obstructions*
  Ex. Renal calculi/ BPH
  Normal urine- approximately 1500 mL
  Polyuria- > 2500 mL
  Oliguria < 400 mL
  Anuria < 50-100 mL

*__Chronic__ – gradual/irreversible
- prognosis is poor

Stages:

- **Stage I – Reduced Renal Reserve**
  Damage: 75 %
  Compensation: 25 %
  S/Sx: Asymptomatic

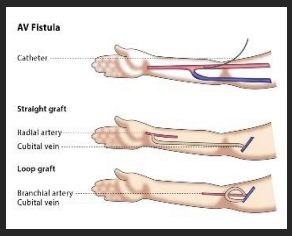
- **Stage II – Renal Insufficiency**
  Damage: 75-90 %
  S/Sx: ↑BP and edema- RAAS activation due to fluid balance disruption that is why there is hypertension
  ↓ GFR - ↑ BUN and Crea = azotemia
  Uremic frost- urea crystals- itchy so advice to give Calamine lotion
  Urine odor breath

- **Stage III – End Stage Renal Disease**
  Damage: 90-100 %
  S/Sx: Stage 2 + electrolyte imbalances
  ↓Ca+ due to Vit D synthesis disruption
  ↑ Phosphorus (> 4 mg/dL)
  ↑Mg (>2.5 mg/dL)

Mgt. Ca+ supplement (Caltrate plus) – cause it has Vit D
Phosphate Binders (antacids)- ex. ALOH (aluminum hydroxide), NO- milk of Mg / MgOH, NO Maalox- combination of Al Mg
Oliguria: < 400 mg/dL - ↑ K+ H+ (met acidosis)
Anemia – due to erythropoietin synthesis disruption
Mgt. EPOGEN (erythropoietin)- give SubQ 2-3x/wk

HEMODIALYSIS

- Inside machine has a heparin pump
- Freq. 3-4x/week
- 3-4 hours/session
- Artificial kidney – dialysis machine
  = Diffusion is to remove excess waste
  = Osmosis → removal of excess H2O
  = Filtration
- Vascular Access – Vein & artery
  = **Internal – done in OR**
  Permanent
  a. AV fistula – combine artery and vein
    - disadvantage – 4-6 weeks healing time
    - advantage – No Risk of rejection
  b. AV Graft – (PTFE) polytetrafluorethylene tube (plastic)
    - disadvantage –risk of rejection
    - advantage – readily available



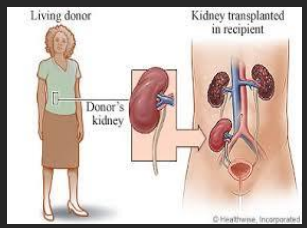
  = **External – temporary** (done at bedside)
  encourage exercise using stress ball
  a. AV shunt- temporary using or for emergency
  b. PTFE
- **Check weight** before and after, *most* sensitive indicator
- 1L = 1kg
- v/s (cause it cause ↓**BP**)
- **Auscultate** – bruit (swishing sound due to rapid blood flow)
- **Palpation** (+) Thrill
- **AVOID** – BP taking on the arm with puncture
  Venipuncture
  Constrictive Clothing
  Direct pressure
- **Encourage** – non-vigorous exercise ex. Stress ball
- **Dialysis Disequilibrium Syndrome** – new to dialysis

- Neurologic S/Sx
- Rapid removal of urea from the blood which triggers osmosis then the H2O will go to the brain which causes cerebral edema, Alt. LOC, ↑ICP = Do not STOP the procedure right away
- To prevent this slow the infusion or gradually introduce the client to dialysis

PERITONEAL DIALYSIS

- Done by the patient
- Freq. Daily 7x/wk, 3-4x/day
- Technique = Sterile
- Artificial: Kidney = Peritoneum
- Solution: Dialysate fluid (↑glucose concentration)
- 2-3L of glucose/fluid
- **Most important** to remember = check warm temp. (using the drop light) for rapid clearance or prevent abdominal discomfort
- Tenckhoff catheter = 3-4 cm below or beside umbilicus
  Normal: clear/pale yellow
  Cloudy – infection / peritonitis = boardlike rigidity of the abdomen – **REPORT**
  Bloody – check menstruation / newly inserted
  - If it persists for several occasion **REPORT!**
- **Phases:**
  a. **Infusion** – 5-10 min
     - **If cramps** – slow the infusion and check if solution is warm
     - **Dwelling time** – 30-45 min
       > 45 min –cause hypoglycemia
  b. **Draining time** – 10-30 min
     - turn the client side to side if SLOW

KIDNEY TRANSPLANT



- Transplanted kidney is at iliac fossa
- Just below the disease kidney
- Risk for displacement so NO prolong sleeping or contact sports
- Risk for acute rejection up to 2 years
- Manifestation: fever, flank pain, oliguria, edema, graft tenderness
- **DOC: immunosuppressant** - ↑ Risk of infection for lifetime, ex. Steroids, prograft, cyclosporine (Sandimmune) – can be taken with chocolate, milk or orange juice but **NO grape fruit juice** cause it will potentiate the effect or cause toxicity

DISORDERS OF THE NEPHRON – destroy glomerulus

- **NEPHROTIC SYNDROME** – autoimmune, widening of pores of glomerulus (damage of the glomerular lining) → CHON

Leak of protein

Leak urine (proteinuria) → Fruity urine → Liver will produce lipoprotein which will bind with fats cause Hyperlipidemia

↓Albumin → ↓Oncotic pressure → edematous & ↑BP ascites

Mgt.

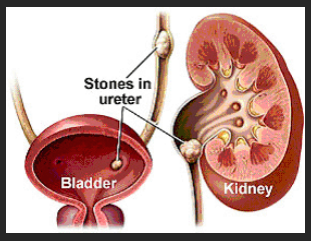
- lean protein so without fat
- limit Na+ intake
- limit oral fluid intake

Meds. **Atorvastatin**
Antihypertensive "ace inhibitor -pril"-best
Diuretics
Steroids

- **NEPHRITIC SYNDROME** → Infection cause = URTI –group A beta hemolytic strep
  - Acute glomerulonephritis
  - Common causative agent- inflammation of the glomeruli due to an antigen-antibody reaction
  - Sore throat – 2-3 weeks, antigen-antibody reaction target glomerulus leads to ↑epithelial cells and scarring & thickening & increase series of inflammation response.
  - **S/Sx.**
    No urine/oliguria < 400 ml/day
    Edema **diet:** limit Na+ and H2O
    Pallor (anemia)
    Hypervolemia =↑ BP
    Reddish brown/cola-colored urine
    Increase BUN & Crea = avoid CHON
    Tenderness @ flank area
    Increase specific gravity
    Sore throat

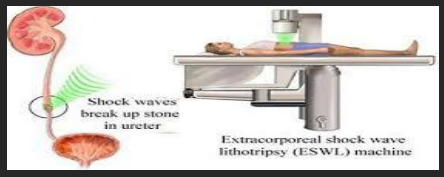
DISORDERS OF THE URINARY TRACT
RENAL CALCULI

- **NEPHROLITHIASIS**
  - Location: kidney
  - Component: Ca+ oxalate
  - Stones
    ↓
    Obstruction
    ↓
    Straining
    ↓
    Hematuria **(expected)**
    Priority: Pain
    DOC: Meperidine (Demerol)
    WOF: Oliguria – could indicate complete obstruction
    UTI 2° to stasis of urine
    Hydronephrosis – collection of urine above the obstruction
  - Risk Factor:
    Chocolate
    Okra (lady's finger)
    Sweet potato/Spinach
  - Diet: Acid-ash diet
    Plums
    Prunes
    *Cranberries
    Corn
    Cheese



- **UROLITHIASIS**
  - Location: ureters
  - Component: uric acid crystals
  - Avoid: **B**eers
    Organ meats
    Yeast
    Sardines/Salmon
    Anchovies
  - Diet: Alkaline-ash diet
    Milk
    *fruits except plums & cranberries
    Green leafy vegetables

TREATMENT FOR RENAL CALCULI:



Extracorporeal Shockwave Lithotripsy (ESWL)

- Simple stones too large to pass through then ultrasound shock waves crush stones so smaller pieces pass out of body in urine
- Dissection of stones into smaller fragments
  - Eliminated via urine
- Position: Supine
- Pre: NPO 6-8 hours
  IV sedation – midazolam
- Post: Monitor for minor bleeding
  - Expected S/E bruise in the area
- **Mgt**: ↑OFI
- **Comp: Pain** – indication that there's obstruction despite smaller fragment
- Monitor: Oliguria, UTI, Hydronephrosis

DISORDERS OF THE BLADDER

- **URINARY INCONTINENCE**
  - Involuntary loss of urine
  - **Types**:
    1. **Stress incontinence**- intact urethra
       - During coughing, laughing, sneezing
    2. **Urge incontinence** – over active bladder
       - Strong urge that cannot be suppressed
       - Bladder inflammation
       - Parkinson's
    3. **Mixed incontinence (stress and urge)**
       - Common in pregnant woman
    4. **Overflow incontinence**- over distention of the bladder so urine leak (renal calculi/BPH)
    5. **Functional incontinence**- functional urinary tract but patient is unable to control urination
       Ex. Patient in late stage Alzheimer's disease, cognitive disorder
  - **Mgt**. **Anti-cholinergic – Ditropan** to decrease muscle spasm
    Bladder retraining program- behavior medication program; bladder diary; decrease frequency visit to the toilet and increase interval
    Pelvic Exercise- Kegel's

- **URINARY RETENTION-** inability to completely empty the bladder
  - **Catheterization:**
    Urethra: F: 2-3 inches tape @ inner thigh
    M: 6-10 inches tape @ suprapubic or lower abdomen

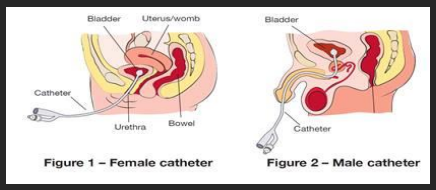
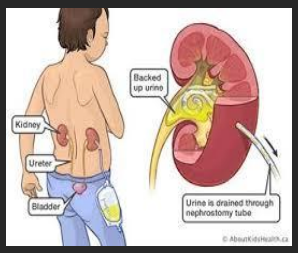


Figure 1 – Female catheter Figure 2 – Male catheter

  - **Cause:**
    1. **BPH**
    2. **Cystocele –** prolapsed uterus
    3. **Bladder Atony – Mgt.** Giving urolinergic agent
       DOC: Bethanecol – to decrease bladder spasm – increase urine output, mimic parasympathetic system so increases GIT and GUT

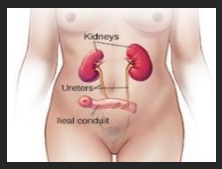
NEPHROSTOMY TUBE

- For patient with hydronephrosis
- "**nephro**" kidney, "**ostomy**" opening- minor procedure
- NPO for 6-8 hours
- Local anesthesia used
- Position: side-lying/prone
- Post- expected – minor bleeding
- Check for patency
- PRN for pain med

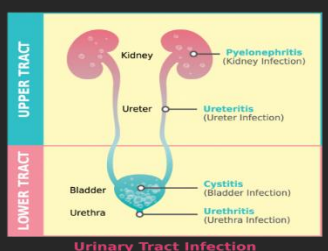


ILEAL CONDUIT

- Anastomosis, the connection of the ureters to the 12 cm loop of ileum
- Stoma
- Color: brick/beefy red
- **Report:** purple/purplish
- Frequency drain: 1/3 full or 4-6 hours
- **WOF**: cause drain continuous – **DHN**
- Skin barrier – prevent skin irritation, avoid moisturizing soap/lotion
- Acidify urine (↑ascorbic acid) to decrease odor of urine



URINARY TRACT INFECTIONS – ascending bacteria



Urinary Tract Infection

- S/Sx fever, pain during urination @ flank / suprapubic area/late: hematuria

PYELONEPHRITIS

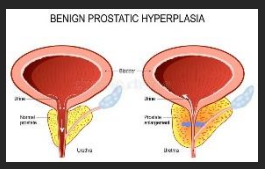
- Location: Kidney

CYSTITIS

- Location: Bladder
- **Mgt. Of the two:**
- OFI ↑
- Avoid stimulants: alcohol, caffeine, beef, spicy
- Diet: acid-ash
- Warm sitz bath
- **DOC**: **Antibiotic** – **Nitrofurantoin**= cause brownish urine – so increase OFI with meals
  Methenamine- avoid milk cause it works in acidic environment
  Pyridium- bladder analgesic with meals, may cause red-orange color urine

DISORDERS OF THE MALE REPRODUCTIVE TRACT

- **BENIGN PROSTATIC HYPERPLASIA (BPH)**
  - Male
  - *dribbling urine – most common characteristic
  - > 50 y.o.



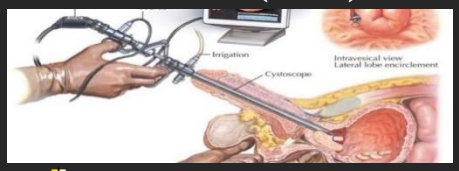
↑Dihydrotestosterone
↓
↑Cellular proliferation of prostate tissue
↓
Obstruction
↓
↓Urine output (frequency & urgency)
↓
Weakened streamed urine
↓
Straining
↓
Hematuria (expected)

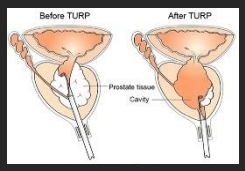
  - Dx test:
    1. Digital rectal urine
    2. Normal Size- pea size

Lab test: Normal
(PSA) prostate specific antigen = < 4ng/dl
ESR (check inflammation) = < 15-30 mm/hr
*PSA > 4 but < 10 = BPH
* > 10 = increase Risk for prostate cancer

Treatment of BPH

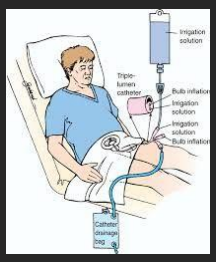
1. **TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)**





- Use resectoscope
- Position: lithotomy
- NPO – 6-8 hours
- Anesthesia – general
- Post- continuous bladder irrigation A.K.A cystoclysis which prevent clot formation up to 3 days
- Resume sex 7-10 days
- Complication: Perforation
  Infection
  Clot formation = Sx. Bladder spasm, Tx. Belladonna alkaloids

2. **CONTINUOUS BLADDER IRRIGATION (CBI)**
   - 2-3 L of NSS @ 40 gtts/min
   - Inflate catheter with 30 ml of H2O
   - 3 way- inflow, inflation balloon, outflow
   - Output – bright red-↑flow rate
     pale/clear - ↓ Flow rate
     Normal – Pinkish / amber
   - **CBI steps**



     a. Empty 1st if drainage bag is full of urine
     b. Wash hands
     c. Connect the irrigation solution/bag to the irrigation tube, priming & hang on IV pole
     d. Wear clean gloves and clean the inflow and outflow part using antiseptic swab
     e. Connect the irrigation tube to the inflow part
     f. Connect the drainage tube to the outflow part
     g. Unclamp the drainage tube 1st
     h. Unclamp the irrigation tube

Med Mgt BPH

- **Palmetto berries**
- **Proscar (finasteride)**-prevents conversion of testosterone
- **Terazosin (Hytrin)**-relaxes smooth muscle ↑UO
  WOF: ↓BP = HOLD
- **Pyridium** – bladder analgesic

TESTICULAR TORSION

- Twisting of scrotum /scrotal sac
- Risk: neonates and weight lifters
- Blood supply decrease so decrease O2 flow leads to ischemia which is an anaerobic energy supply, leads to increase lactic acid which can cause excruciating pain, edema, swelling
- DOC for pain is **Morphine**
- If left untreated **within 6 hours, it is irreversible**
- Elevate scrotum if there's still pain torsion

MALE REPRODUCTIVE DRUGS

Erectile dysfunction – poor blood supply flow, DM, HTN

- S/E patients taking antidepressants
- **Avoid: nitrous oxide drugs** cause vasodilation leads to increase blood flow or perfusion such as
  1. **Viagra (Sildenafil)**
  2. **Cialis (Tadalafil)**
  3. **Levitra (Vardenafil)**

  So, this drug can be taken 1° before sex, onset is 30 min, duration is 2-4 hours
  S/E: **F**acial flushing
  Headache
  Mild indigestion
  Notify Dr if erection is more than 4 hours
  Priapism- painful erection
  Prio – ER: **Phenylephrine** - vasoconstriction
  Aspiration of blood (syringe)
  NO NTG – fatal ↓*BP*

CARE OF THE CLIENTS WITH BURNS

SEVERITY OF BURNS

	Stage	Depth	Assessment
Partial Thickness	I	*Superficial partial thickness,* Affects: epidermis Common – Sunburn	Dry, redness
	II	*Deep partial* (most painful) "dermis"	Moist, edema, blister formation
Full Thickness	III	*Full thickness* Affects: SubQ Not painful	Moist, edematous, sloughing of skin
	IV	*Deep full thickness* Affects: muscle, bones Not painful	Dry, swelling black or chard

Stages

1. **Emergent phase** – Shock phase
   - Up to 2 days
   - General DHN

- Fluid shifting form IV to interstitial spaces, edema at burn site leads to decrease BP, then decrease kidney perfusion, decrease Urine output, then decrease hemoconcentration, (↑HCT) leads to cell lyses (WOF:↑ K+ cause it move out of the cell) , Na+ trap @ edema/burn site ↓ Na+

  Prio: Fluid Mgt

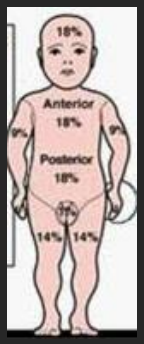
  Fluid resuscitation = PLR IV

2. **Diuretic phase**
   - Client has fluid shifting from interstitial space to IV leads to increase BP and increase kidney perfusion leads to polyuria, hemodilution (↓Na+) so v/s increase and ↓hct so K+ go back to the cell cause of ↓K+
   - **PRIO:** Infection
   - **Mgt.** Asepsis
3. **Recovery phase**
   - **Prio:** wound care
   - **Mx.** Wound debridement
   - **Prio:** Pain (Analgesic-morphine 30 min to 1 hour prior to operation) gather sterile sponges and gloves and collect ample for the culture & sensitivity test
   - **Apply** silver sulfadiazine cream

TOTAL BODY SURFACE AREA:

THE RULE OF 9'S

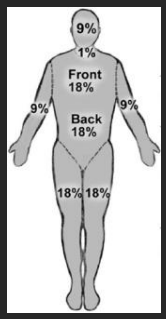
Parkland formula for burns:



Child:

Head: 18 %
Front: 18 %
Back: 18 %
Upper extremity: 9 % @
Lower extremity: 14 % @
Perineum for both 1 %

Adult



Head: 9 %
Upper Front: 9 %
Upper Back: 9 %
Lower Front: 9 %
Lower Back: 9 %
Upper extremity: 9 % @
Thigh: 9 % @
Leg: 9 % @

PREVENTION OF SHOCK: Fluid Resuscitation

BAXTER & PARKLAND METHOD

4 ml X TBS X wt. (kg)

First 8 hours = 50 %

Next 16 hours = 50 % (25 %, 25 %)

Computation: adult health nursing

Situation #1:

Patients weight = 70 kg

Estimated percentage body burned = 80 %

Fluid requirements first 24 hours = ? **ans. 22,400 mL**

Fluid requirements, first 8 hours (1/2 of total) = ?

Ans. 11,200 mL

Situation #2:

Patients weight = 60 kg

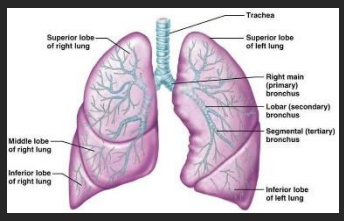
Estimated percentage body burned = 45 %

Fluid requirements first 24 hours = ? **ans. 10,800 mL**

Fluid requirements, first 8 hours (1/2 of total) = ?

Ans. 5,400 mL

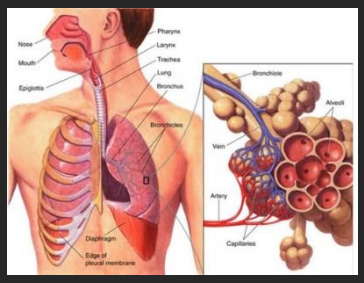
RESPIRATORY SYSTEM



Anatomy & Physiology

Non-sterile

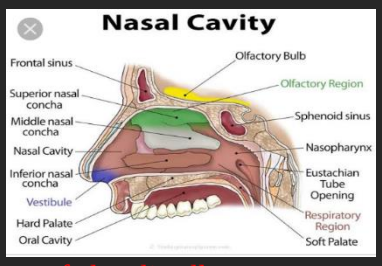
1. Nose
2. Nasal Cavity
   a. Olfactory receptor – responsible for appetite stimulation
   b. Capillaries – warm the air (humid); *epistaxis* cause by trauma, HTN, dry; Mgt. lean forward, pressure, cold compression (vasoconstriction), notify the Dr. DOC neo-synephrine, nasal packing ("-phrine"-vasoconstriction); **do not** blow the nose
3. Pharynx (naso, laryngo, oro) – cough, gag reflex, CN IX & CN X
4. Epiglottis
5. Larynx "voice box"



Sterile

6. Trachea (wind pipe)
7. Bronchus & bronchioles

   Acinus- functional unit of lungs; this is the collective term for bronchioles & alveoli
8. Alveoli – has elastic recoil; this is damage in pt with emphysema



3 types of alveoli cells

a. Type 1- alveolar cells (95%) thin
b. Type II- alveolar cells (5%) secrete surfactant (dec surface tension) and this prevents atelectasis
c. Macrophages (dust cells) defense

9. Lungs – (-) pressure (sucking effect)
10. Diaphragm – muscle for breathing

*DOB – a. Sx use of accessory muscle like the sternocleidomastoid and trapezius muscle

b. retractions – signify complete to partially complete obstruction

c. cilia

d. mucous membranes – helps propel foreign object

Breathing Nervous System Control

- ↑CO2- stimulus to breath
- Medulla oblongata – main respiratory center
  *wise to position ↑ICP- semi- fowlers
- Phrenic nerve – diaphragm

Function

1. **Gas Exchange –** diffusion
2. **Acid-Base Regulation**

Principle:

1. Balance by 2 body system a buffer by Renal and Respiratory
2. CO2 (basically acid) + H2O = carbonic acid
   - So, ↑CO2 alveoli = Respiratory Acid
   - ↓ CO2 alveoli = Respiratory Alkalosis
   - Metabolic Acidosis – DKA & Chronic Renal Failure; to balance it should reach its alkalinity so respi can eliminate CO2
     Mgt. Hyperventilate/Kussmaul's breathing
3. Immune Function – alveolar macrophage

ASSESSMENT

Lung Volumes & Capacities

Tidal Volume (TV)	Vol of air inhaled & exhaled normally @ 300 cc
Inspiratory Reserve Vol (IRV)	NORMAL inhalation + MAXIMUM inhalation
Expiratory Reserve Vol (ERV)	NORMAL exhalation + MAXIMUM exhalation
Residual Vol (RV)	Forever in the lungs. Prevents lung collapse
Functional Residual Capacity (FRC)	ERV + TRV. Volume of air left after normal exhalation
Vital Capacity (VC)	IRV + ERV + TV
Total Lung Capacity	TV + IRV + ERV + RV

Rates & Depth of Respiration

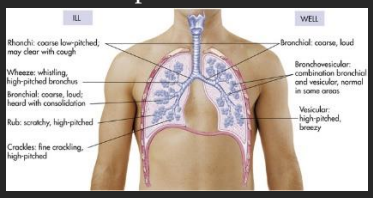
Eupnea	N rate & depth
Bradypnea	Dec. rate N depth
Tachypnea	Inc. rate N depth
Hypoventilation	Irreg. rate dec. depth
Hyperventilation	Inc. rate & depth
Apnea	Cessation of breathing
Cheyne – stokes	Inc. rate & depth → Dec → apnea
Biot's	Eupnea (3 breaths) → Apnea

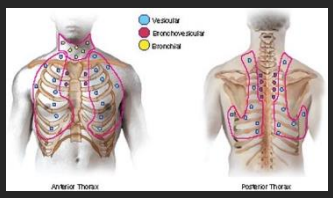
Normal – bronchial vs vesicular

Bronchovesicular – same inhalation & expiration; heard over the middle bronchus (scapula)

Vesicular- over the lung fields
Inspiration

Bronchial- heard in manubrium (in sternum & trachea)
Expiration





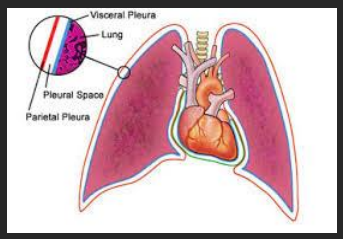
Adventitious - abnormal breath sounds

Crackles – secretions (during inspiration)- just like *bubbling sounds*

Wheezing – Expiration; high pitch musical sound signifies *airway narrowing*; ex. Asthma

Pleural friction rub - inflammation of the pleura because it was thickened; heard – peak of inhalation, peak of exhalation & beginning of inhalation

Parietal – where nerve endings is



Diagnostic Tests:

1. **Chest X-ray (Roentgenogram) -** ↑dense – white
   ex. P. infiltrates / foreign objects
   - Less dense – blacks- air filled lungs

N.I. 1. Remove jewelries @ chest areas
2. Pregnancy / LMP
Instruct inhale & hold

2. **Bronchoscopy –** larynx, bronchus, trachea visualization
   - **B**loody sputum – expected if minimal
     - If persistent – notify Dr
   - **R**emove dentures
   - **O**2 sat. check (before, during, after)
     - Normal 95-100%
   - **N**PO – 6-8 hours
   - **C**onsent
   - **H**ave resuscitative equipment
   - **O**bserve gag reflex
   - **S**upine before/after procedure – semi – fowlers – prevent laryngeal swelling/edema

3. **Sputum Culture**

Disease	Sputum Appearance
Pneumonia	Rusty Sputum
Asthma	Watery-mucoid
Lung Abscess	Foul-smelling
Emphysema	Thick-tenacious
TB	Early – mucopurulent Late - hemoptysis

Collection – early AM
- ✓ Rinse H2O
- ✓ Nebulize- NSS/glycol
- X Rinse alcohol
- X Antibiotics

Acid Fast Bacillus – confirmatory Dx (TB)
- 3 consecutive ams

Arterial Blood Gas (ABGs):
- **A-** Allen's test
- **R-** Rest 30 min
- **T-** Tight pressure (approximately 5 min)
- **E-** Evaluate pH
- **R** Room air/ O2/ Mech vent
- **I** Ice (to prevent hemolysis place in ice)
- **A** Avoid suctioning – if suction - falsely low result
- **L** Lab within 15 min

*prepare pre-heparinize syringe to prevent clotting, for neonate – T syringe with heparin

ABG Interpretation – 3.5 easy steps

Step 1: pH

Step 2: Determine if respiratory or metabolic

Step 3: Compensation

Respiratory Diseases & Conditions

Atelectasis – lung collapse
- Acute – emboli
- Chronic – sputum

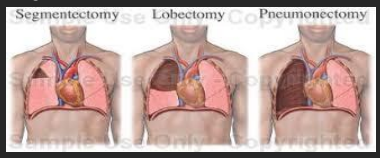
Initial Sym. - hypoxia, hypoxemia
- Restlessness
- Response Sympathetic = inc RR, HR, BP

Mgt. O2- dependent- check Drs order
- O2 – X flammable (initiate)
- ✓ combustible
- X static electricity (carpet)
- If with O2 remove 1st before defib

Oxygen therapy	
Nasal cannula/prongs	1-6 L/min, if more than 6 the pt will just swallow
Simple Face Mask (just like nebulizer, ok if with mist, no bubbling -increase)	7-10 L/min aerosolized meds; o2 driven
Partial Rebreather mask	8-12 L/min with reservoir bag; check CO2 in the mask
Nonrebreather mask 2 valves (environment/room air and O2)	Check O2 concentration 100 %; compression bag
T-piece- weaning	High flow – push O2 to pt
Venturi Mask	**Most accurate** O2 device COPD

Lobectomy – removal of the lobe, CTT if with fluid accumulation

Same with Sigmoidectomy
- **L**obectomy
- **U**naffected
- **P**neumonectomy
- **A**ffected



Pneumonectomy – removal of the entire lung

= perform arm exercise 2/3x a day (ROM) to prevent shoulder ankylosis stiffness

= cut phrenic nerve – helps diaphragm rise

= fluid will solidify
- ✓ Fluid accumulation
- X CTT

Complication of both:
1. **Tracheal deviation**
2. **Atelectasis**- most common comp. UP
3. **DVT** – comp. DOWN

Pain dec. = shallow breathing leads to dec. surfactant leads to atelectasis

Mgt. Deep breathing
- Give analgesics
- Splint- put pillow over the incision

Acute Respiratory Distress Syndrome (ARDS)

- injury leads to inc
  - **S**erotonin
  - **L**eukotriene
  - **H**istamine
  - **B**radykinin

- which causes edema (membrane is swollen) result to hypoxia even with inc. O2. Mgt. mech. Vent.
- position is **PRONE** for lung expansion**,** not all the time though

Sample Q.: Mr. Y, an immediate post-appendectomy patient, is placed on O2 therapy via nonrebreather mask. However, *after 15 min. of adm. the pulse oximeter still indicates that the O2 sat is 88% to 89%.* What complication is most likely?

a. Aspiration Pneumonia
b. Pulmonary embolism
c. Spontaneous tension pneumothorax
d. ARDS

Acute Respiratory Failure (ARF)

- paCO2 > 50 & paO2 < 50
- Respiratory muscle disorder (ALS, GBS, MG – common cause of death is respiratory paralysis), if diaphragm is damage CO2 is trap and O2 cannot enter
- Severe Chronic disease – Asthma/bronchitis

<u>Conditions Causing Respiratory Failure</u>

Affects the **flow of blood** into the lungs:
- **Pulmonary embolism –** blocks the blood flow and causes lung damage

Affect the **nerves and muscles** that control breathing:
- **Muscular dystrophy, ALS (**inc CO2- respiratory acid**), Spinal cord injuries**

Affects the areas of the **brain** that control the breathing:
- **Strokes, Drugs/alcohol abuse**

Affects the **flow of air in and out** of the lungs
- **COPD, Cystic fibrosis**

Affect **gas exchange in the alveoli**
- **ARDS, Pneumonia**

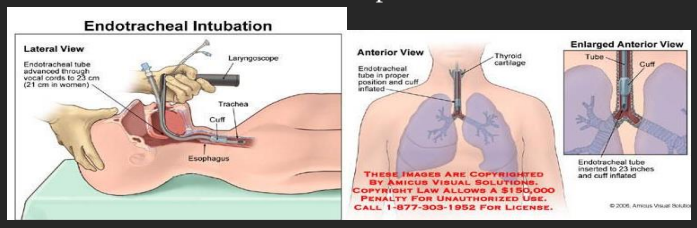
Artificial Airways:

Nurse job:
- ✓ Placement
- ✓ Inspection: bilateral lung expansion
- ✓ Auscultation
- ✓ Sound

1. Endotracheal Tube (ET tube)

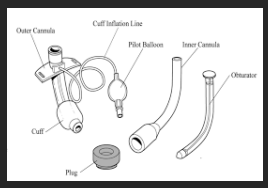
- Chest x-ray- confirmatory, 1-2 cm from carina
  - ✓ 21 days only, if > 21 source of infection
  - ✓ 20-25 mmHg – inflated, OK - pt can't speak

If pt can speak it means it is not inflated
if < 20 / leak – causes aspiration
if > 25 can result to perforation/fistula



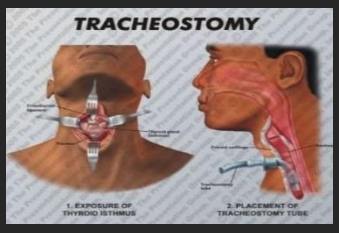
2. Tracheostomy

- Stoma in trachea, **Normal 20-25 mmHg** with cuff (outer)
- Obturator – at bedside to facilitate insertion
- Inner cannula – hydrogen peroxide + NSS



In Use:
- Deflate the cuff
- Remove inner cannula- to expose holes
- Plug

Not in Use
- Plug
- Inner cannula
- Inflate the cuff (secure)



3. Mechanical Ventilation

- Alarm ON- check machine 1st (temporary lung of pt.)
  - **a. Controlled Ventilation –** respiration comes from the machine
  - **b. Assist/Control Mode –** assistance from the machine
  - **c. Synchronized Intermittent Mandatory Ventilation –** more effort from pt than the machine (T piece attached to O2)

a & b for **weaning** - ↓ FIO2 by 5 every 1 hr
↓ VR by 1 every 2 hr

8 am FIO2 – 100 %
VR – 20 cpm
9 am FIO2 – 95 %
VR – 20 cpm
10 am FIO2 – 90 %
VR - 19

FIO2- fraction of inspired O2
Room air = 21 % O2
VR-ventilator rate – 20 cpm

High pressure alarm (resistance/obstruction)

- Increase secretions
- Bronchospasm
- Pt is anxious/fights ventilator

Low pressure alarm (leak)

- Self extubation
- no spontaneous breathing
- detached

Manually ventilate if you can't see the cause of alarm

PEEP – for pt. with congestion, dec. CO so dec. BP

Positive
End
Expiratory
Pressure

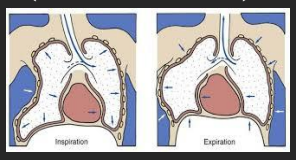
CPAP – small like nebulizer

- both inhalation and exhalation
- for pt with obstructive sleep apnea

Continuous
Positive
Airway
Pressure

Flail Chest – pathognomonic sign **is** paradoxical breathing

Cause: multiple rib fracture (trauma, accidents)
Rib or sternum fracture
Mgt: Allow fracture to heal



Pneumothorax – air in pleural space

- CTT upper part
- X-ray shows pitch black cause it is still an air without blood vessels

Types:

a. **Open** – stab wound
b. **Tension/Valvular** - blunt trauma (valve like structure, Inhale (air is in) Exhale (air trap)
c. **Spontaneous** – pt. with emphysema
-with air bleb without trauma

Assessment:

a. Unilateral chest expansion
b. Diminish breath sounds
c. Tracheal deviation to unaffected side

Mgt: Drain air (upper) – CTT

Pleural Effusion – mgt CTT – lower

- Dry cough (secretions is trap)

Type of fluid	Source of fluid	1°Ass. Disorders
Hydrothorax	Water fluid that diffuses out fr capillaries	Cardiovascular dse with high BP, liver or kidney dse (hypoproteinemia)
Transudative	Leukocytes, plasma proteins	Infection, Inflammation, Malignancy of pleura
Exudative	Debris of infection (pus)	Pulmonary infections (pneumonia, lung abscesses, infected wound)
Hemothorax	Hemorrhage	Traumatic injury, Surgery

CTT – pleur-evac

- ✓ Pt can turn
- ✓ Ambulate
- ✓ Dislodge – non-porous
- X Clamping – aggravate

Drainage

- ✓ Dark red
- X Bright red - bleeding

Valsalva- for removal

- 100 cc/hr - report

H2O seal

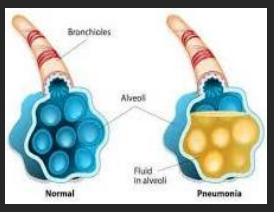
- ✓ 2 cm H2O
- ✓ Intermittent bubbling
- ✓ Tidaling- fluctuating (gradual)
- X **tidaling**
  - Re-expansion
  - Obstruction/leak
  - No suction

Suction

- ✓ Continuous gentle bubbling
- ✓ Air vent always **open**
- ✓ The deeper it will submerge the stronger is the suction
- ✓ 20 cm H2O

Pneumonia

- **Causes**: bacteria, fungi, virus
- Inflammation of lung parenchyma
- **5 Cardinal Symptoms**
  1. Chills
  2. High-grade fever (101-105°F)
  3. Cough
  4. Sputum
  5. Pleuritic chest pain- inc. pain during inhalation



- **Types:**
  1. **CAP (Community Acquired P.)**- <48°, common rusty sputum, S. aureus or Strep. P.
  2. **Hospital Acquired P.** – usually intubated, >48°, Pseudomonas, MRSA
  3. **Pneumonia in immunocompromised Host** -AIDS (jiroveci p.), Age (too

young, elderly), burns/surgery, corticosteroids

4. **Aspiration**

- **Mgt.**
  1. **Suction** – dominant (sterile), non-dominant (unsterile)
  2. Inc. O2- 100 %
  3. Test patency, suctioning sterile H2O
  4. Lubricate (H2O soluble)
  5. Insert – X suction if with resistance (carina), withdraw 1-2 cm then suction intermittently and rotate, for 10- 15 sec only, > 15 vasovagal reflexes will stimulate PNS so dec HR, RR, BP
  6. Hyper O2- 100 %

Lung fluid management

Considerations:

- Oxygenation
- Hydration
- Nutrition

CPT – Chest Physiotherapy – empty stomach -1° before or after meal

Percussion

Vibration

Postural drainage – gravity

Auscultate: UPper secretions- Heads UP

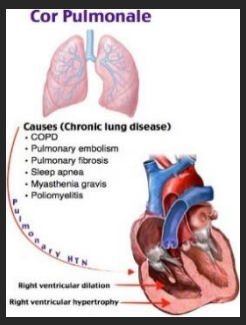
LOwer – head Low

X beta- blocker – -olol cause inc. vasoconstriction

Good fluid indicator

Weight

Urine Output



Cor Pulmonale – "more water"

COPD + R-sided

Dependent edema

Ascites

JVD

Severe COPD – hypoxemia and hypoxia **lead** to inc. resistance and inc. pulmonary HTN **leads** to inc. Right Ventricular Workload **leads** to Right Ventricular hypertrophy leads to Right sided HF

Asthma

- Hyper responsiveness of airway
- **X** to games STOP & GO (basketball, soccer)
- Inc. mucus mem/ production -edema
- Bronchoconstriction
- Sunset – most pollen / airborne
- **Initially- Respi Alkalosis**, if untreated pt. dev. Air trapping so CO2 cannot go out leads to **Respi. Acidosis (late)** then respi failure
- *Pulmonary function test*- Dx

Risk factor:

- **Intrinsic** (within the pt) – extreme emotion, physical stress
- **Extrinsic** – allergens, MSG

ZONE	SYMPTOMS	MGT
Green (Doing well)	No cough No wheeze No chest tightness No SOB ✓ Usual activities Peak flow meter: 80-100%	Long term meds
Yellow (Getting worse)	With cough wheeze chest tightness SOB Some usual activities Peak flow meter: 50-79%	Fast-acting bronchodilator – albuterol (beta agonist)
Red (Medical alert)	Inc SOB Quick relief meds not helpful X usual activities Same condition or worse 24 hours after yellow zone Peak Flow Meter: < 49%	Albuterol Corticosteroids Solu-cortef

COPD – progressive airflow limitation

- Risk factor: Smoking
- Air trapping
- Irreversible
- **S/Sx:**

  Cough, clubbing of fingers (Chronic cyanotic)

  O2 sat 90 %

  Productive sputum

  Dyspnea on exertion
- **Mgt**: O2 low concentration 2-3 L/m

  Use venturi mask – dec con inc. flow

  Purse lip breathing

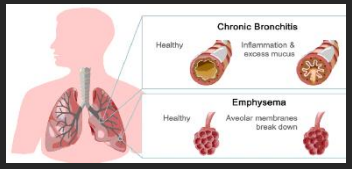
  Close- ended question on assessment

  Diet- Inc. CHON and dec Carb

Chronic Bronchitis

- Inflammation
- If continuous leads to fibrosis (scar) which is irreversible
- Dec. O2 – hypoxic drive, drive to breath signal (M. oblongata)

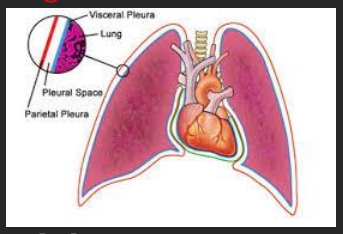
Emphysema



- Elastic recoil
- Barrel chest

Pleurisy – visceral (- nerve endings)

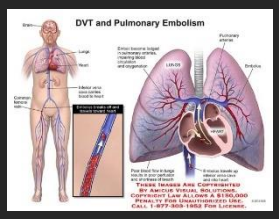
- Parietal (+ nerve ending)
  Knife like **PAIN!**
- pain radiates in abd and shoulder if phrenic nerve is irritated
- **Mgt.:** antibiotics, anti-inflammatory



Pulmonary Embolism

- **Causes:**
  1. Thrombus
  2. Air
  3. Fat- long bone fracture (mech. Vent.)
  4. Amniotic Fluid
  5. Septic

- **Initial S/Sx**
  1. Lung Sx
     a. DOB
     b. Inc RR
     c. Chest pain
  2. Cardio



Right Ventricle = JVD= Systemic

- Dec surfactant leads to atelectasis
- Dec CO leads to shock (late sign)

Air Embolism – Air rises
Mgt. = Positioning
To trap it in Right Ventricle so LSL/L Trendelenburg.

- **Mgt.:**
  - O2
  - Inotropes (dopamine, dobutamine)
  - Thrombolytics- "**-kinase**"
  - Anticoagulants
    Oral (Warfarin) = IV (Heparin)
    Delayed effect– monitor PTT
    5-7 days
    So OK if with Heparin
    Monitor PT
    Antidote: Vit K(warfarin)
    Protamine SO4 (heparin)

DO	Don't
Observe bleeding Soft toothbrush, electric razor Elastic stockings	Combine Aspirin + Coumadin Contraceptives Prolonged sitting/standing Restrictive clothing Trauma

Carbon Monoxide Poisoning

- Useless & inc combustion
- >50% - coma/death
- **Initial sign -cherry pink/red**
- **Mgt.:** Hyperbaric O2 therapy
- **X O2 sat**- false inc O2 reading

Tuberculosis

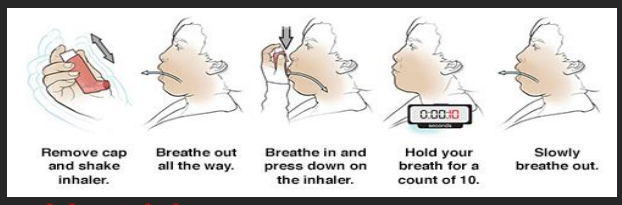
- **Report to CDC**
- Dec socio economic status
- Immunocompromise
- Health care worker
- **Test exposure – Mantoux skin test**
  ID x 48- 72 hrs post reading
  1. **Competent** - > 10 mm induration, palpable, no redness
  2. **Immunocompromised ->5 mm**
- **CXR** – affirmation
  Consolidation – upper part
- CPT – complete contraindication
- Sputum – AFB – confirmatory
- Use Hepa filter mask, N95 mask
- Room- double door- NOT to open both at once

Respiratory Medications:

Bronchodilators – S/E – SNS

a. **Sympathomimetics**
   Beta-adrenergic Agonist "**erol**"
   Albuterol (Proventil)
   Bitolterol
   Salmeterol (Serevent)
   Terbutaline (**Bret**hine)
   Anticholinergics
   Ipratropium inhaled (atrovent)
   Tiotropium, inhaled (Spiriva)

b. **Methylxanthines**
   Theophylline, oral (theolair-SR, Theo-24, Uniphyl)



Metered dose inhaler:

1. Shake the inhaler well before use (3-4 shakes)
2. Remove the cap
3. Breath out, away from your inhaler

4. MDI should not be put inside the mouth (without spacer) but held about two finger widths (1 ½ inches) in front of the mouth
5. Start to breath slowly, Press the top of the inhaler once and keep breathing in slowly until you have taken a full breath
6. Remove the inhaler from your mouth, and hold your breath for about 10 seconds, then breath out
7. Interval between doses: 1 min

Wait peak bronchodilator 20 mins before adm of corticosteroid (anti-inflammatory)

If with spacer –put inside mouth– elderly/children

Glucocorticoids-

S/E – oral fungal infection – prevent rinse mouth

Inhaled

Beclomethas**one** diproprionate (Qvar)
Budeson**ide** (Pulmi**cort** turbo**haler**)
Flunisol**ide** (**Aero**Bid)
Fluticas**one** propionate (Flo**vert**)
Triamcinol**one** (Azma**cort**)

Oral

Prednis**one**
Prednisol**one**

Inhaled Nonsteroidal Antiallergy Agents

- mast cell stabilizer, DOC – asthma

Cromolyn sodium, inhaled (Intal)
Nedo**crom**il, inhaled (Tilade)

Leukotriene Modifiers

LeukoTriene Receptor Antagonists

- Long term maintenance

Montelukast, Oral (Singulair)
Zafirlukast oral (Accolate)

Leukotriene Inhibitor

Zyflo

Monoclonal Antibodies

Omalizumab (Xolair)
**for allergy-related asthma, administered SQ every 2-4 weeks

Antihistamines

Diphenhydramine (benadryl)
Fexofenadine (Allegra)
Loratadine (Claritine)
Cetirizine (Zyrtec)

Expectorants & Mucolytics

Expectorants – Guaifenesin (Humibid, Robitussin)
Mucolytic Acetylcysteine (Mucomyst)

Antitussives

Opioids

Codeine
Codeine Phosphate
Codeine Sulfate
Hydrocodone
Homatropine (Hycodan)

Nonopioids

Diphenhydramine HCL Benadryl

Opioids Antagonists

Nalmefene (Revex)
Naloxone HCl (Narcan)
Nalrexone (ReVia)

Tuberculosis Drugs

Rifampicin- S/E red orange body fluids
Isoniazid – peripheral neuritis – adm. Vit B6 - pyridoxine – no to Parkinson drugs
Pyrazinamide - hepatotoxic
Ethambutol – optic neuritis
Streptomycin

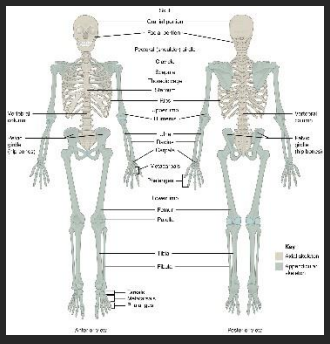
- CN8 – ototoxic. WOF deafness

Empty stomach for absorption

6 months
2-3 weeks – *non -infections*

a. Evaluate effectiveness of anti-TB drugs by sputum culture for AFB
b. Anti- TB drugs must be taken in combination to avoid bacterial resistance
c. Empty stomach for maximum absorption
d. Avoid alcohol. Anti-TB drugs are hepatoxic

MUSCULOSKELETAL SYSTEM



Radiography – x-ray = **visualize hard tissue** (bones and teeth)

- Ask if pregnant, remove metals

Bone Scan – radioactive with dye

- Radioisotope/ radio tracer inserted thru IV to determine **abnormal bone metabolism** (osteoporosis, bone CA, osteitis deformans or Paget dse)
- **Pre- GAN**
  - Get consent
  - Ask for allergy and pregnancy
  - NPO 4-6 hrs

- Empty bladder for better visualization
- Remove metals and jewelry
- **Post**-
  - Inc. OFI
  - Without toilet precaution

Arthrography – **visualize soft tissue** (with dye) then x-ray done

- **Pre – GAN**
- **3A's**
  - Assess the joints
  - Avoid strenuous activity for at least 2 hrs
  - Apply ice

Computed Tomography – computed generated radiation

- **Pre –** X pregnant
  - Get consent
  - Assess if pt can lie for 30 mins
  - If with dye- assess for allergy
- **Post** Inc OFI (with dye)

Magnetic Resonance Imaging – Use of strong magnetic field

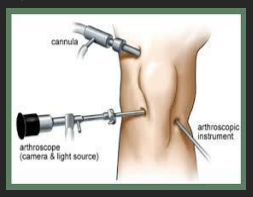
- **Pre**-
  - No radiation so Ok for pregnant
  - Get consent
  - Assess if pt is claustrophobic (sedate if ever)
  - X metals & jewelries
- **Post**-
  - If sedated – safety prec
- **CI**: pacemakers, metal implants, braces to avoid burns

Dual Energy X-Ray Absorptiometry/DEXA- determine **bone density & bone mass**

- **Pre**- Ask consent
- Remove metals
- Discontinue Ca+ Supplement – 24-48 hours before the procedure
  Osteoporosis meds- on the day before the pro
- **Post**- none

Arthroscopy- the use of fiber optic scope to visualize **joint structures**

- Done in OR, with GA anesthesia /LOC
- **Pre**- Assess ROM (joint) < 50 % contraindicated
  - NPO 6-10 hours
- **Post**-
  - 3A's
  - Elevate and extend
  - **REFER**: dec. ROM, pain, edema (if more than 2 days), S/Sx of infection

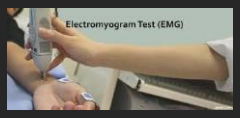


Arthrocentesis – aspiration of **synovial fluid**

- **Pre**-Bedside, local anesthesia, topical
  - Check consent
  - 3A's

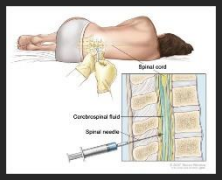
Electromyogram- use electrically charged needles to determine **muscle activity**

- **Pre**
  - Get consent
  - Inform the patient that the procedure is uncomfortable
  - Give topical anesthesia
- **Post**-
  - Bruising (apply warm - dec. discomfort & cold - dec bruising) – expected; assess muscles



Myelography – injection of the dye to the (CSF) subarachnoid space to **determine spine pathology**

- **Pre**
  - Get consent
  - Ask for allergy
  - Inc OFI 24-48 hrs prior to procedure & on the day NPO 4-6 hrs
- **Post**
  - Assess movement and sensation
  - For 8 hrs
    - Water dye- semi fowlers
    - Oil- supine/flat
    - Air – Trendelenburg



GOALS Treatment: for pt with injury, discomfort, immobility, deformity & disability provide comfort, safety, mobility and independence

Exercise:

- Inc muscle strength (iso**metric** (-) joint movement) & Inc. ROM (iso**tonic** (+) joint movement)

Exercise	Description
Passive ROM	RN
Active assistive ROM	RN + PT
Active ROM	PT
Active resistive ROM	PT with/without RN
Isometric	PT

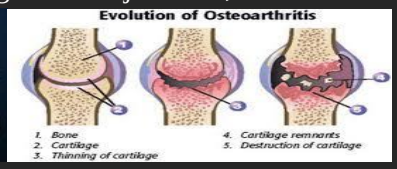
Good posture (the back should be straight) **& Proper body mechanics** (even distribution of the weight)

- **Push- OK Pull- X**

Safety and independence

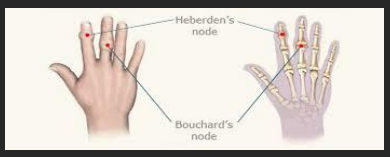
- Hand rails/ bathroom bars
- Elevated toilet seat for **pt with prosthesis**
- Slip proof rugs
- Snaps of closure and garterized for **pt with Parkinson's**
- Slip on shoes
- Lever type door knobs
- Wide diameter handles for **pt with arthritis**
- Foot pedal faucet

Osteoarthritis – degenerative joint dse; wear & tear



- Affect weight bearing joints
- Hypertrophy and spurring of the bone and erosion of cartilage
- **Risk factors**
  - Old age
  - Obesity
  - Poor posture
  - Poor body mechanics
- Degeneration of articular **cartilage (shock absorber) leads to** bone to bone contact **leads to** bone hypertrophy **leads to** bone spicules form
- **S/Sx** – joint pain leads to dec. ROM
  Early sign – morning stiffness normally relieve by rest, pain worse with activity

Distal



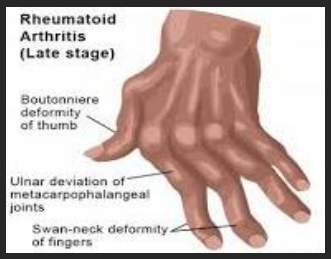
Proximal

- **Drug therapy**
  NSAIDS –WOF *oto*toxicity & *nephro*toxicity, *hepa*totoxic
  - **N** – Naproxen (Flanax), Nabumetone (Relafen)
  - **S-** Sulindac (Clinoril)
  - **A-** Arcoxia, Arthrotec– combination of Cytotec and diclofenac so ask if pregnant
  - **I** - Ibuprofen (Motrin) Indomethacin
  - **D-** Diclofenac (Voltaren)
  - **S** - Salicylate

- **Herbal supplements:**
  Glucosamine – assess for allergy (ingredient is exoskeleton of shellfish)
  Chondroitin – derive from sharks and pigs (religion)
- **Surgery:**
  Osteotomy – bone reforming/reshaping
  Total joint replacement (arthroplasty)

Rheumatoid Arthritis – Chronic type, inflammatory, hereditary, progressive autoimmune

- Synovitis – inflammation of synovial tissue **leads to** Pannus formation (granulation of tissue) **leads to** Fibrous formation (Scar tissue) **leads to** Bony Ankylosis (bones replaces scar tissue) – abnormal stiffening
- **S/Sx**
  Joint pain
  Dec. ROM
  Stiffening – not relieve by rest
  Deformity
  1. Swan neck deformity
  2. Ulnar deviation
  3. Boutonniere's deformity
  4. Rheumatoid nodes – elbows and wrist & joints



Drug Therapy:
NSAIDS

a. **Anti-arthritic**- tumor necrosis factor blockers substance, normal reaction for injury;
   Etanercept (Enbrel) SQ
   Infliximab (Remicade) IV
   Adalimumab (Humiral) SQ
   S/E: respi. Infection, dizziness, headache
   Mgt: x-ray every 6 months
   Assess breath sounds
   Check for PTB prior to drug adm

b. **Gold compounds:** dec. immune system
   Chrysotherapy- slow acting, 3-6 months
   Give meds 1/wk every 6 months
   Na thiomalate (myochrysine) IM
   Aurothioglucose (Solganal) IM
   S/E: MAPS
   Mouth sores
   Aplastic anemia (dec RBC, WBC, platelets)
   Proteinuria
   Skin rash
   Auranofin (Ridaural) PO – 1/wk every 6 month
   S/E: MAPS + Diarrhea

c. **Glucocorticoids –** dec. immune sys
   Prednisone (Deltasone)
   Dexamethasone (Decadron)
   - **Inc. Salt, Sugar, Sex**
   - The longer you take it inc risk for osteoporosis cause dec. Ca absorption
   - Inc. appetite
   - Inc. fluid retention
   - GI upset
   - ↓ K+
   - Thrombocytopenia

   Mgt.
   Usually given with meals
   Given in AM
   Avoid large crowds
   Wear medic – alert bracelets
   Taper down the dose

Avoid these drugs:
Diuretic
OHA
K+
Insulin

Surgery:
Synovectomy – removal of synovial tissue
Arthrodesis- use of metal rods limited to small joints like fingers. Normally given up to 6 months then remove
Arthroplasty- total replacement of joints
Juvenile RA – 2-5 & 9-12 yrs

Labs:
Inflammatory- Inc WBC, Inc. ESR &
C-reactive protein – use to detect progression of the dse of the pts response to treatment
Autoimmune
(+) ANA – Antinuclear antibody
(+) Rheumatoid factor

Gout
- AKA Podagra
- Metabolic dse
- Inc. Purine Diet (liver convert purine to uric acid) in hyperuricemia (no S/Sx) **leads to** Acute Gout (with S/Sx) **leads to** intermittent asymptomatic **leads to** chronic gout- involvement of aorta, heart and kidney
- **Risk Factors:**
  - **P**urine diet
  - **A**lcohol
  - **O**besity
- **S/Sx:** joint pain, tophi formation- UA- crystalize & deposits of joints, dec ROM
- **Diet: dec. purine**

Avoid: Anchovies, Sardines, Salmon
Legumes
Lentil
Beer
Organ meats (sweet breads), meats in general
Yeast
Sprouts

OK with:
Water, fruits except with seeds, rice, milk, cheese

- **Drug Therapy**

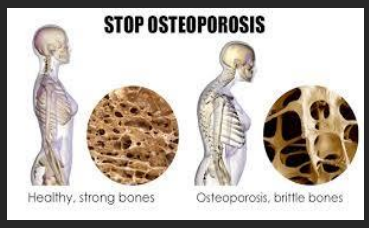
NSAIDS
Steroids
Anti-gout- GI upset so give with meals and Inc OFI
Allopurinol (Xyloprim) – med of choice
- Inhibit xanthine oxidase- enzyme use to convert purine to uric
- Insoluble so inc OFI to dissolve the drug
- Do not give with aspirin cause it dec. effectivity of the drug

Colchicine (Colsalide) – prevent deposition of uric acid, DOC- attack

- Dec. pain and dec. inflammation
- Inc. OFI to prevent deposition

Prebenecid (Benemid) – promotes excretion of uric acid, Inc OFI

Osteoporosis – metabolic disorder characterizes by dec. *bone density*



Risk factor:

O –old age

S-smoking & steroids use

T-trauma

E-endocrine disorder- hyperparathyroidism (bone to blood), Cushing's, hypothyrocalcitonin (blood to bone)

O-oophorectomy, menopause (dec. estrogen)

P-Pregnancy

O-over intake of caffeine

R-race (Caucasians, Asians), Renal disorders- because kidney synthesize Vit D

O-obvious family history

S-small time frame

I-Inadequate Ca & Vit D intake

S-sedentary lifestyle- so weight bearing exercise, walking

S/Sx:

Bone pain
Reduced height
Easily fractured
Always fall
Kyphosis

Diet:

Swiss cheese
Swiss chard
Whole milk
Non-fat, skim milk
Soy milk
Tofu
Turnip green
Collards
Kale

NO cottage cheese- dec CA

Drug therapy:

	Ca	Vit D
Pregnant	1500 mg	
Non-preg.	1000 mg	
Menopause with estrogen replacement	1000 mg	400-600 IU/day
Menopause without estrogen replacement	1500 mg	

Estrogen replacement therapy

Bone resorption inhibitors:

Calcitonin (Calcimar, Miacalcin) – blood to bone

S/Sx:

N/V
Constipation
Hypokalemia **(WOF)**

Alendronate (Fosamax) – bisphosphonate

- Bone to blood
- Dec. osteoclasts (resorption) activity
- Take upon arising with full glass of water followed by NPO for 30 mins & remain upright

- **S/E:**
  - Esophageal irritation
  - Flushing & rash

Raloxifene (Evista) – selective estrogen modulator receptor

- Mimics some of the effects of the estrogen at the same time opposite the effects of estrogen –inc mood swings, hot flushes, dec. libido.
- Fluid retention, weight gain, bloating of breast, inc. clot tendencies, Inc. risk for DVT

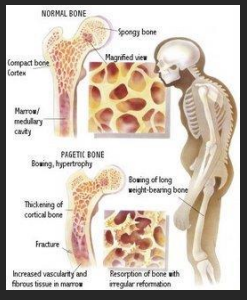
Surgery:

Percutaneous vertebroplasty- Corrects the hairline fracture of spine

- Use of cement- subs methyl methacrylate

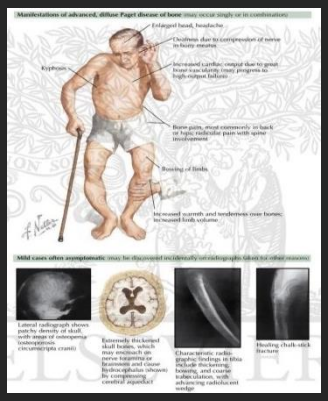
Paget's Dse – AKA Osteitis Deformans

- **Cause:** Unknown
- Inc osteoclast act and osteoblast (forming) then bones become weak (mosaic like appearance)



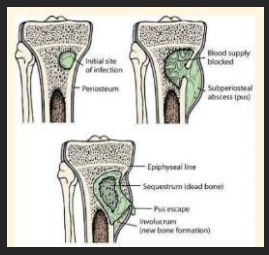
- **S/Sx:**
  - Bone pain
  - Bowing of legs
  - Deformity
  - Inc head circumference (Skull
  - thickening) "my hat no longer fits"

- Impaired hearing – stapes
- *REFER: invagination (pouch) of the base of skull
- (platybasia- is a spinal disease of a malformed relationship between the occipital bone and cervical spine) Ataxia and retardation



- **Drug therapy:**
  - **NSAIDs**
  - Alendronate (Fosamax)
  - Calcitonin
  - Ca & Vit D supplements

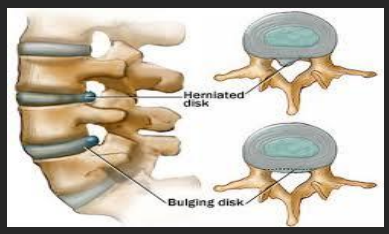
Osteomyelitis – S. aureus



- Infection of bone with involvement of bone marrow
- **S/Sx.**
  - Fever
  - Bone pain
  - Chills
  - Discharges
  - Foul odor
- **Antibiotic therapy:**
- **Surgical Mgt.:**
  - Incision and drainage
  - Sequestrectomy- removal of infected bone
  - Bone graft
  - Amputation*

Intervertebral Disc Herniation –slip disc

- **Risk Factors:**
  - Poor posture
  - Poor body mechanics
  - Obesity
  - Trauma
- **Cervical** – Upper extremity
  - C5-C6, C6-C7
  - **S/Sx:** pain, paresthesia, weakness, altered reflexes
- **Lumbar** – Lower Extremity
  - L4- L5, L5-L1
  - **S/Sx**: pain radiating from upper extremity then back to hips and to lower extremity hit the sciatic nerve



Sleeping positions:

Cervical – anything but NO prone

Lumbar – side-lying with hips and knees flexed/sims

Drug therapy:

Muscle relaxant: S/E: both for dizziness and drowsiness

Methocarbamol (Robaxin) – change in the color of urine (green, brown, black) – *expected*

Cyclobenzaprine (Flexiril) – tachycardia so max 2 weeks

Surgery: all surgical position – Flat on bed

Chemolysis – dissolves the disc using enzyme chemopapain (derive from papaya)

Diskectomy – removal of disc

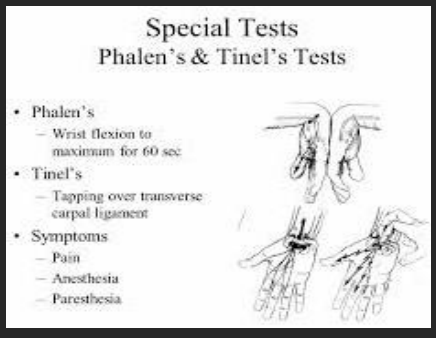
Diskectomy with fusion – spinal fusion

Laminectomy – removal of lamina

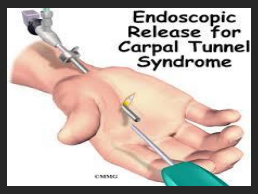
Laminotomy – dissection/division of lamina

Carpal Tunnel Syndrome – compression of median nerve

- **Risk Factors:**
  - Repetitive movements (typist)
  - Arthritis – inflammation
  - Pregnancy – edema
  - Difficulty forming or making a fist or grasping
- **S/Sx:** pain, paresthesia, tenderness of your thumb, index and middle finger
- **Dx:**
  - Tinel's Test – tap median carpal nerve
  - Phalen's Test
  - Reverse Phalen's



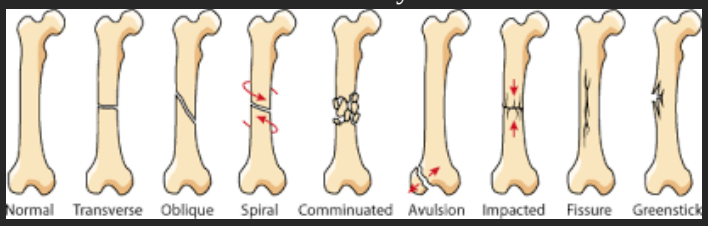
- **Drug therapy:**
  - Steroid injection
  - NSAIDS
  - Vitamin B
- **Surgery:**
  - Surgical release
  - Endoscopy release



Muculo - skeletal injuries

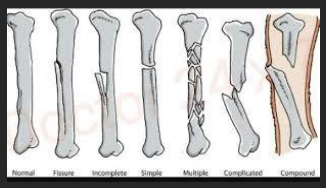
Sprain – ligaments
Strains – tendons
S/Sx: Pain, Tenderness, Swelling, Bruising
Mgt: **R**est
Ice- within 24 hours then warm after
Compress
Elevate

Fracture – break in the continuity of the bone



S/Sx:

1. Bone pain
2. Crepitus– hair grating/cracking sound
3. Deformity – if in the hip- hip shortened externally rotated
4. Dec. distal pulses
5. Coolness of the affected extremity



Compound fracture: bone exposed to air cause of break in the skin
Complete fracture: bone is separated completely into two parts
Simple fracture: skin remains intact

Initial care:

1. Immobilization
2. Use of splints
3. Use sterile dressing

Medical Mgt:
Reduction – manual manipulation of the bones
Classification: **Open**- surgical
Close- non-surgical
Fixation – bone attachment
Classification
Internal – use of wires, plates and screws
External – application of bandages, splints and adhesions

Casts

Do's

1. Let it dry
   - Plaster of Paris – 24-48 hrs
   - Fiberglass- 20-30 min
2. May hastens dying using the cool setting of hair dryer, electric fan OK
3. Use palms
4. Rubber, plastic surfaces

Don'ts

1. Use of warm water- contribute hotspot prone for infection
2. Don't cover until dry – moistens- weak cast
3. Finger- prone to indentation leads to uneven cast, prone to compartment syn.
4. Avoid cloth surfaces

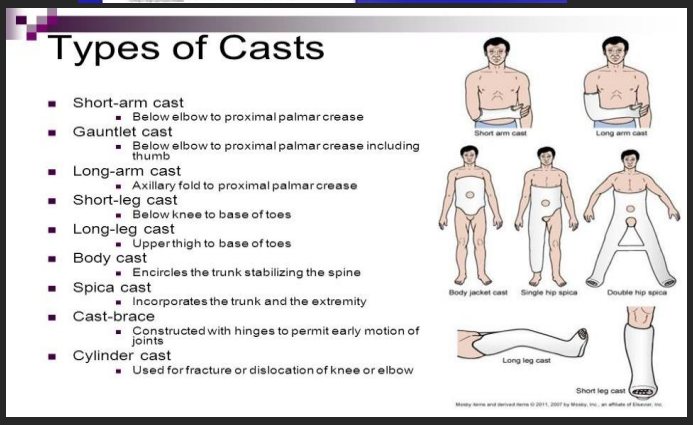
Care for client:
C- clean using mild soap & water, OK wiping
A- Assess for temp. sensation of extremity, apply ice, assess capillary refill
S- sling provided, skin care
T- turn pt every 2hrs
E- Elevate & exercise
D- Do not put anything inside the cast
"use cool setting of hair dryer"

Compartment Syndrome – build-up of pressure inside a compartment that can expand

- **Internal pressure**- cause bleeding and edema
- **External pressure**- cast is too tight
- **5 Ps**
  - Pain - **prio**– unrelieved by narcotics, worsens during elevation
  - Pallor
  - Paralysis
  - Pulseless
  - Paresthesia

Mgt:

- Internal pressure
  - Fasciotomy
- External pressure
  - Windowing
  - Bivalving



Cast Syndrome

- Pressure build up in the duodenum
- Cast that covers thoracic area
- Body cast/spica cast
- **S/Sx**:
  - Abdominal distension
  - Abdominal pain
  - Absent bowel sounds or stools (paralytic ileus)
- **Mgt**: remove and replace cast
- **Surgery**: Duodenojejunostomy- remove duodenal necrotic part & connect with jejunum

Complications of fracture:

Compartment & cast syndrome

Shock

Infection- osteomyelitis-amputation

Fat embolism – inc risk within 3 days, 7- 10 days affect heart, lungs, brain == **comp**. DOB, tachycardia, dyspnea, petechial rash, chest area or neck, face, arm, upper ext. // only **Mgt** mech. vent

Avascular necrosis- amputation

Non-union, mal-union, delayed (6 months)

T – to exert a pulling force

R – relieve nerve compression

A- Allow alignment

C- control contractures

T- to decrease muscle spasm

I- injured part, maintained in position

O- observe if it hangs freely

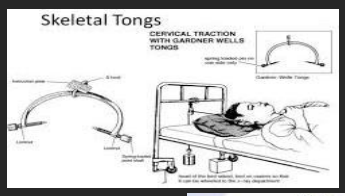
N- no snugs on ropes

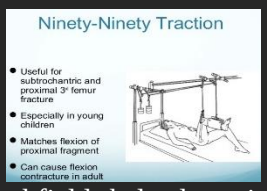
Skeletal traction – anchored hard tissue

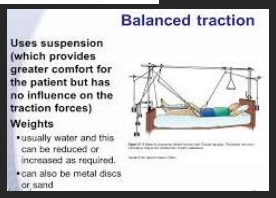
- Weight: 25-45 lbs
- Use of wires, pins, screws

Indication

1. For long term use
2. Adults
3. Non-intact skin







Crutchfield skeletal traction, 90-90 traction, Balance skeletal traction, Halo (like gloria aroyo)

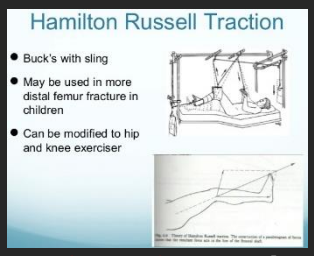
Skin traction – soft tissue

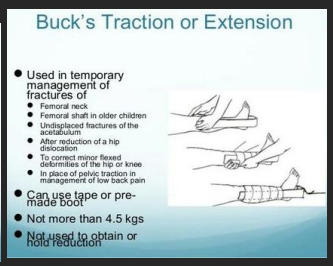
Weight 4.5- 8 lbs

Use of bandages, splints and adhesions

Indication:

1. Short term use
2. Children
3. Intact skin



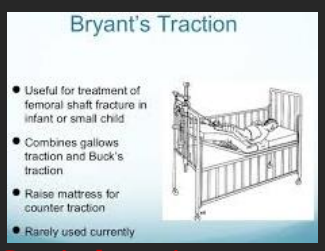


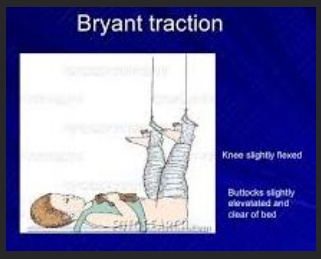
Bryant's traction – used in children <2 y.o to reduce femur fracture/stabilize hips

Russell's traction – reduce fracture of hip/femur

90° traction – used on femur if skin traction isn't suitable

Buck's traction – temporary immobilize fracture of the leg



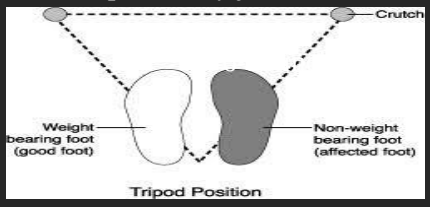


Cervical traction –

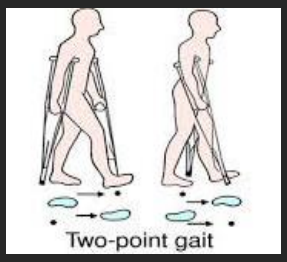
stabilize spinal fracture/muscle spasm

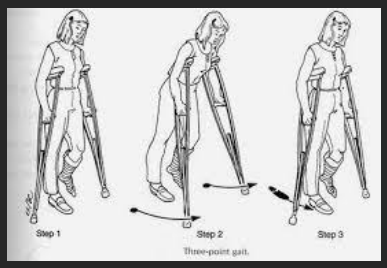
Crutches

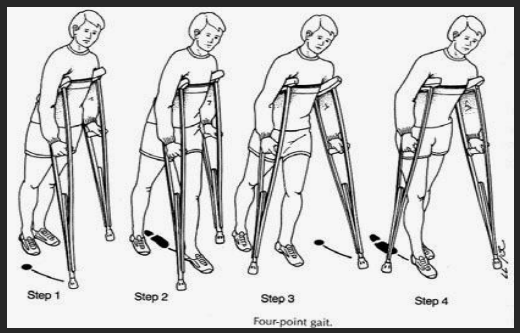
- 2-3 finger breath to prevent damage to brachial plexus
- Elbow angle 15-30°
- Standing crutches measurement from axilla to the sole of the foot same if patient lay just add 2” cause of the shoes



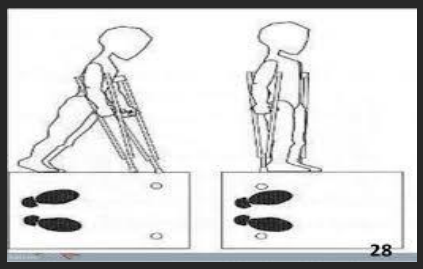
Crutch gaits	
2point gait-resembles normal walking, transitional gait, fastest gait, weight bearing Mild bilateral weakness	-advance one crutch and opposite leg together - advance other crutch and leg together
3point gait- indicated for fracture, cast, sprains -this is **ONLY** the non-weight bearing 1 leg is odd	- advance both crutches and bad leg forward -advance leg while keeping body weight on crutches -advance & hop
4point gait – weight bearing, indicated for patient with osteo/rheumatoid, slowest gait Severe bilateral weakness	-advance one crutch -advance opposite leg -advance other crutch -advance opposite leg
Swing to/through – bilateral paralysis, weight bearing-both feet touch the ground Non-weight bearing- only one foot	-advance both crutches -lift both feet/ swing forward

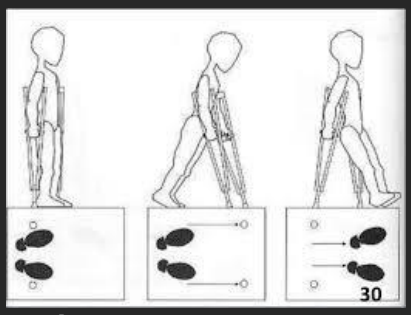






Swing to





Swing through

Standing to sitting

- Free one hand
- Support arm rest
- Gently flex the good foot until scaled

Going up and down the stairs

Up with the Good
Down with the Bad

Canes

Elbow – 15-30°

* Holding the cane is always the GOOD side

*distance from foot- 6”

*cane should be at the level of the trochanter

Walkers

- Always lift and roll
- distance from foot- 8-10”
- weight on hand bars
- Pick them up, sat them down, walk through them – slow
- have pt tie the belongings in the side not the front

Wheelchairs

Adult

Pedia

Paraplegia- Up/down

1. lower the bed at the level of the wheelchair
2. have the pt sit upright
3. can also provide an overhead trapeze/sliding
4. wheelchair should be at bedside

Hemiplegia- Right/Left

1. lower the bed at the level of the wheelchair
2. wheelchair should be positioned in an angle
3. provide gait belt, rotating disc
4. wheelchair is position at the good side, head part

Joint Replacement:

Total hip replacement surgery

Avoid:

Flexion

Adduction

Internal Rotation

External Rotation

OK - **E**xtend

Abduction

Neutral Position

Use trochanter roll to prevent external rotation

Post Hip Replacement

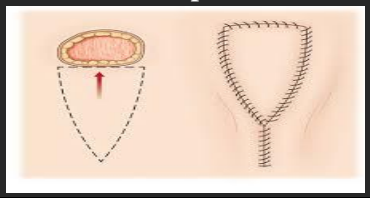
- Abduction wedge/pillow
- Positioning- no bending
- Strong/firm chair
- Avoid turning in the opposite side or avoid weight bearing on affected leg
- Elevated commode
- Weight should be at the hand to avoid prosthesis dislocation

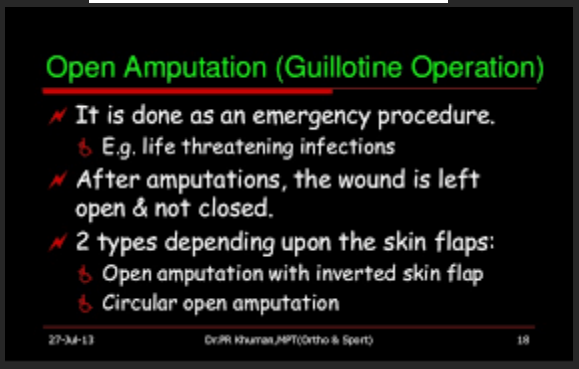
Total Knee Replacement

- Do not dangle
- Avoid weight bearing on affected leg

Amputation

- **Risk factors / Complications** of DM, Avascular necrosis, Peripheral Vascular Dse, Trauma, Congenital Defects
- **Closed skin flap**- stiches/suture





- Rigid dressing – rigid dressing helps contour stump

No dressing is indicated for pt with infection, trauma – open for observation 7-10 days if no infection close- OR

Prosthesis placement – early placement (closed), Open-delayed

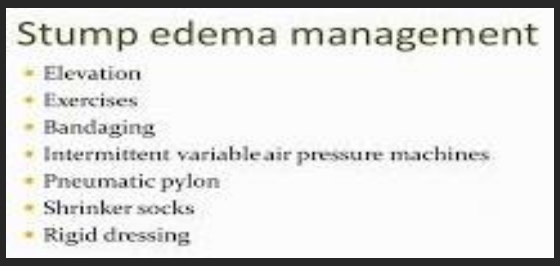
Mgt.

- Phantom limb pain- cause by the stimulation along the neve pathway, give analgesis

Post-

- Elevate the foot of the bed
- Post 24-48 hours position the patient prone, 3-4 hours/day for 30 mins to prevent contractures (mostly related to flexion)
- With or without pillow is ok,
- Avoid prolong sitting
- Tourniquet at bedside
- Massage skin

- Stump care- daily inspection using the mirror, avoid using creams, lotions, powders,
- Can clean with mild soap & water
- Residual sock- made of delicate fabric it should be handwash and dried flat, replace everyday
- Residual socket should be moisture free



Lyme Dse:

Affects children

Common among woodland area- CT

Summer- June -Aug

Causative Agent: Borrelia Burgdorferi – tick bite

Instruct pt to use long sleeves & light-colored clothing

1st stage: day of the bite to 1 month

S/Sx. Flu-like Sx, sore throat, fever, **bull's eye**, rash (small red lesions that expands laterally to form concentric ring)

2nd stage: 1 month to 6 months – brain (bell's palsy) & heart involvement (dysrhythmias)

3rd stage: 6 months to 1 yr – S/Sx joint pain

HEMATOLOGY

Blood – connective tissue, organ exist in a fluid state

- **Function**
  a. Transport O2 and eliminate CO2; hgb- O2 carrying of blood, red color
     2 types of normal hgb
     1. **HbF (fetal hgb)** – birth up to 1.5 y.o 2 alpha and 2 gammas
     2. **HbA (Adult hgb)** 1.5 till lifetime 2 alpha and 2 betas
  b. Transports hormones from the glands
  c. Maintains acid-base balance
  d. Promotes body defense against antigen invasion and disease
  e. Involved in the control of bleeding
- **Components**
  - Plasma- 55 % of the total blood; dissolves subs., electrolytes, vit. and minerals, clotting factors
  - Buffy coat (leukocytes (wbc) and platelets); < % of the total blood
  - Erythrocytes – 45 % of the total blood (RBC)

Thrombopoiesis - process of platelets formation

Leukopoiesis - process of WBC formation

Hematopoiesis – process of blood formation

- Production, Maturation and proliferation (erythropoiesis – RBC)

2 types

1. **Medullary** – bone marrow (in major organ)
   a. Bone marrow aspiration – *confirmation* of blood dse
2. **Extra medullary**- (RES) Reticulocyte endothelial System- **accessory organ**
   a. **Spleen** – graveyard of RBC- 120 days lifespan; filters microorganism
   b. **Kidney** – responsible for the production of erythropoietin (for RBC synthesis); pt. with kidney problem is at risk for **anemia** and to prevent this give **Epogen IV** (erythropoietin)
   c. **Liver**- production of Iron – needed for hgb synthesis; Prob. Inc. risk for anemia – **iron supplement**
   d. **Lymph nodes**- maturation sites of lymphocytes
   e. **Lungs**

Medullary type – bone marrow to blood stem cell to:

a. Myeloid stem cell – RBC, platelets, WBC (neutrophils, basophils, eosinophils, monocytes); **PRIO – IBA – I**nfection, **B**leeding, **A**nemia

b. Lymphoid stem cell – Lymphocytes – B cells, T cells, NK cells (natural killer)**; PRIO-Infection**

Reticulocyte Endothelial System

Normal values:

RBC – 4,000,000 -5,200,000/cu mm

Hgb- M- 13.8-18 g/dl

F- 12-16 g/dl

Hct- M- 42-52%
F-35-47%
WBC – 4,500-11,000/cu mm
Platelet- 150,000-400,000/cu mm
ESR - inflammatory response
M- 0-15 mm/hr
F – 0-20 mm/hr

Hemostasis – control of bleeding
1°type – platelets – adheres and aggregate to the site of bleeding to temporarily seal the site
2°type- clotting factor – permanent control of bleeding

Pathology of the hematologic system – most hematologic diseases reflect in the hematopoietic, hemostasis, and RES

Pathology – **Quantity** and **Quality** balance
X dec. Anemia X immaure
X inc. polycythemia OK – mature
OK- adequate amount
Dec. hgb – hypochromic - dec. color
- Microcytic

RBC- lifespan is 120 days
Size- 4-6 um, soft and palpable
Shape- biconcave, flexible
Responsible hormone – EPO (erythropoietin)
Important vit.:
Iron- hgb synthesis
Vit B12 and folic acid – growth and development of rbc
Shift left (immature-large) **to right** (mature-smaller) – with the use of Vit B12 and folic acid – lacking leads to **Megaloblastic anemia** – larger than normal

Normal EPO or erythropoiesis –
Normal EPO production – post 120 days leads to hypoxia triggers/signals the brain to signal the kidney to release or produce EPO then go to bone marrow and prod. **Mature RBC** – with the use of Iron (liver- hgb synthesis), Vit B12 (cyanocobalamin - intrinsic factor from the parietal cells of the stomach, absorption of vit B12 in the small intestine – distal/terminal ileum)

Abnormal – hypoxia-chronic pulmonary dse.(esp. emphysema) –signals brain and kidney inc. RBC in the bone marrow- **polycythemia** – most immature

Red blood cell disorders –
Anemia – dec. RBC leads to dec. O2 – compensate inc HR and RR; activity intolerance and body malaise
Principles of anemia:
a. Dec. RBC production
b. Inc. RBC destruction
c. Chronic blood loss

A. Hypoproliferative anemias
1. **Iron- deficiency Anemia (IDA)** – dec. hgb, hypochromic(pale), microcytic
   - **Cause**: Nutritional deficiency
   - **Risk**: exclusively BF infants so Fe-fortified supplemental feeding @ 4-6 months
   - **Manifestation**:
     a. dyspnea on exertion; activity intolerance
     b. easy fatigability needing more periods of rest
     c. pallor (palmar) palpebral conjunction, nail beds
     d. lethargy
   - **Clinical correlation**:
     a. Pica
     b. Angular Cheilosis – cracking of the side of the lips
     c. Koilonychia – spooning of the nails
   - **Nrsg Mgt:**
     a. Provide rest and comfort
     b. ***Fe-supplementation** – best absorb on empty stomach, so before meals or in between meals, NO coffee, tea dec. absorption; if with discomfort- give it with meals dec. absorption by 50%; give vit C or with orange juice; take with straw if liquid to prevent staining; Z-track tech to prevent staining of skin
     c. Diet- #1 organ meat- liver, meats, green leafy veg., raisins (dried dark fruits), prunes, plum, blue berries

2. **Megaloblastic Anemia** – macrocytic (big sizes), normochromic (N color), immature
   -**Cause:**

Folic acid deficiency

a. Poor diet
b. Pregnancy

Vit B12 deficiency

a. Poor diet
b. Malabsorption
   1. **Pernicious anemia** (lack of intrinsic factor) – **S/Sx:** beefy red tongue and paresthesia
   2. **Ileal dse** – Crohns dse/diarrheal dse

Mgt: diet

- Folic acid- green leafy veg
- Vit. B12-meats or dairy products
- IF- Vit B12 IM injection-readily available-active
  1st week- daily
  1st month-weekly
  2nd month-inc. monthly for life
- Oral vit B12- inactive form-converted by the body if with intrinsic factor- active form B12

- **Diagnosis**

Schilling test – assess vit B12 def.

- **Pre** – pt given oral vit B12 upon intake assess urine for absorption

a. Small amount of oral radioactive Vit B12, Parenteral non-radioactive Vit B12
   - *24-48 hours urine test
   - Urine is radioactive (if absorb)-poor diet
   - Not radioactive (no absorption so cause is malabsorption)
b. Procedure (a) + intrinsic factor – same pre-pro with schilling test + IF; identify cause of malabsorption
   - Urine is radioactive (+) abs. =pernicious anemia
   - Urine still NOT radioactive (-) abs. = ileal dse

3. **Aplastic Anemia** – sudden cessation of hematopoiesis

- is a rare dse caused by a dec. in or damage/destruction to marrow stem cells, the microenvironment within the marrow, and replacement of the marrow with fat.

- **Cause:**

a. Unknown
b. Autoimmune
c. chemicals/drugs (pesticides, zidovudine (for HIV) chloramphenicol (antibiotic-A/E – in bone marrow-myelosuppression))
d. Chemo/radiation – inc. risk for **IBA-infection, bleeding, anemia**

- **Dx test:** CBC- dec RBC, WBC and platelets= all down **Pancytopenia**

Mgt: blood transfusion, fresh whole blood

- Bone marrow exam/aspiration/biopsy- standard confirmation

- **Mgt: BT**

1. Immunosuppressants -cyclosporine – A/E lymphadenopathy
2. Steroids- S/E hyperglycemia, weight gain, moon face appearance
3. Chemotherapy – if cancer is the cause

B. Hemolytic Anemia

1. **Sickle cell anemia**- is a recessive autosomal trait disorder that develops in the child when both parent's carriers of SC trait regardless of the gender\

- **Risk factor-**

a. Hereditary – African-american
b. Precipitating factors
   - High altitude
   - Dehydration
   - Infection
   - Emotional stress
   - Physical stress
   - Acidosis
   - cold

- **HbS-** 14 – 16 days
  - Hgb apathy
  - Abn hgb
  - 75-80% replacement of globin chain
  - Repel O2
- HbA N
  - Alpha 2 and beta 2- 4 O2 carrier
- Abn- HbS
  - 1 alpha and 3 HbS- dec O2
  - Cresent shape, sickling shape
- **Mgt:** O2 and hydration therapy

- **Manifestations**:
  1. Anemia
  2. Jaundice – inc bilirubin due to early hemolysis
  3. Bone enlargement in children- due to bone marrow workload manifestation bone pain
  4. Infection
  5. Multi-system failure
     - Hepatomegaly (LUQ pain)
     - Splenomegaly
     - Kidney failure
  6. CHEST syndrome- pain with breathing due to pulmonary infiltrates
- **Mgt**:

Hydration- 1st 2 is Prio in pt with sickle cell crisis-
O2 temp irreversible
Pain mgt- **vasoocclussive crisis**- blockage of sickle cell in the blood vessel; **give morphine AVOID Demerol or meperidine** (ass. seizure)- dec. O2 so it will aggravate, warm compress (vasodil)
Exchange transfusion – PRBC

Other mgt:
Bone marrow transplantation- IV at bedside
Hydroxyurea- meds to stimulate- prod of HgF- prevent sickling of cell
Antibiotic

Summary of Complications of Sickle cell Anemia

Organ involved	Physical Findings	Symptoms
Spleen	Autosplenectomy, inc. infection (Esp. pneumonia, osteomyelitis)	Abdominal pain; fever, signs of infection
Lungs	Pulmonary infiltrate	Chest pain, dyspnea
CNS	CVA	Weakness (if severe); learning difficulties (if mild)
Kidney	Hematuria, inability to concentrate urine, renal failure	Dehydration
Heart	Tachycardia, cardiomegaly, CHF	Weakness, fatigue, dyspnea
Bone	Widening of medullary spaces and cortical thinning; osteosclerosis; avascular necrosis	Ache; bone pain. Esp hips
Liver	Jaundice & gallstone formation; hepatomegaly	Abdominal pain
Skin & peripheral Vasculature	Skin ulcers; poor wound healing	Pain
Eye	Scarring, hemorrhage, retinal detachment	Dec. vision; blindness
Penis	Priapism, impotence	Pain, impotence

Polycythemia Vera – increase volume of RBCs- immature

	Polycythemia Vera-1°, true, myeloproliferative	2° Polycytemia- pseudo/false/ erythrocytosis
Cause	Unknown	Hypoxia to Chronic Pulmonary Dse
Diagnosis	CBC- inc. RBC, WBC & platelets; immature	CBC- inc.RBC
Assessment	Initial- facial flushing, ruddy skin Hypervolemia-inc BP, headache, dizziness Inc. Hct- Inc. risk thrombus *pruritus (late sign)- inc. basophils- inc. histamine	Same with polycythemia vera except pruritus
Mgt. Inc. iron – inc risk for hardening organs	Therapeutic phlebotomy (extraction of blood)- done 1x1 wk No iron rich food & supplement Calamine lotion/ cocoa butter – to relieve pruritus	Treat the cause / hypoxia

White Blood Cell (leukocytes)
- Protection from infection
- Protect the body from an antigen

1. Granulocytes – with granules in the cytoplasm
   a. Neutrophils– major WBC in an acute infection; 70-80% / None in rectum; bacterial
   b. Basophils-inc. rel. of histamine; b & c for allergic response
   c. Eosinophils- parasitic infection
2. Agranulocytes – Without granules
   a. Monocytes – mature in macrophages- viral/fungal infections
   b. Lymphocytes- T cells – T4/CD4/T helper cells (dec for pt with AIDS); Viral T8/CD8/T cytotoxic cells;
      B cells – matures plasma cells, responsible for production of antibodies to fight antigens
      Normal ratio: T4:T8
      2:1
      AIDS 1:2 or < 200 CD4

"L" is like a "V"

WBC Disorders

I. Leukemia- Inc WBC immature
Cause: Unknown
Classification:
a. Stem cell line involved—
Myeloid (myelocytic) – **IBA**
Lymphoid (lymphocytic)
b. Time in which symptoms evolve
Mx: < 1 yr- acute
>1yr – chronic

Classification of leukemia

Criteria	AML	CML	ALL	CLL
Age group	All incidence rises with age, peak 60yo	Incidence rises with age; median= 40-50 yo	Most common childhood cancer; boy> girl; peak 4 yo to >15 yo	Older adults, >60 yo
CBC RBC WBC Platelets	 Dec. Low(Normal) Dec	 Varies Inc >100,000 Varies	 Dec. Immature lymphocytes Dec	 Varies Inc. Lymphocytes Varies
Clinical Mx	Insufficient production of normal blood cells	Asymptomatic SOB Splenomegaly Hepatomegaly	Immature lymphocytes proliferate CNS involvement Splenomegaly Hepatomegaly	Lymphadenopathy Splenomegaly Hepatomegaly "B symptoms" Anergy
Survival	<1 yr	3-5 yrs	5 yrs	14 yrs (early stage) 2.5 yrs (late stage)
Common cause of death	Infection and hemorrhage	Infection and hemorrhage	Infection, esp viral	Infection and hemorrhage (late)

Acute lymphocytic Leukemia- 2/3 of children

- Nrsg. Dx: Risk for infection
- Diagnostics: bone marrow aspiration/ biopsy
- Mgt.: Chemo
  - WOF- Tumor Lysis Syndrome
    - Leakage in electrolyte leads to inc. K+, uric acid, Phosphorus and dec Ca
  - Bone marrow transfusion
    - Peripheral bone marrow transfusion
    - Immature healthy cells, WBC to allow maturation

II. Malignant Lymphomas – neoplasm of the cells of lymphoid origin/painless enlarge lymph nodes

- Mostly affecting cervical lymph nodes (neck)
- Tumors usually start in lymph nodes but can involve lymphoid tissue in the spleen, GIT (wall of stomach), liver and bone marrow
- **B Sx**- temp- high grade fever >38.5°C; Unintentional weight loss >10% of total body wt; night sweats

	Hodgkin's Lymphoma – fine needle biopsy	Non-hodgkin's Lymphoma
Cause	Epstein barr virus	Immunosuppression -ex. Post-transplant
Age	<20, >50	50-60
Gender	Males> females	Equal risk
Tumor cells	Reed-sternberg cell	Malignant B lymphocytes
Onset of Sx	Mild anemia, painless lymph enlargement (cervical)	Asymptomatic if with Sx late stage
Prognosis	Good with B Sx-generalized Sx- lymphoid in origin	Poor with B Sx Ex. CLL; lymphoma-LN; multiple myeloma-neoplasm of B cells or plasma cells
Tx goal	Chemo/radiation	Chemo/radiation

III. Multiple Myeloma – neoplasm of B cells/plasma cells

- Poor prognosis, palliative care (pain Mgt)
  Cause: metastasis to the bones (severe pain & it aggravates to PM or as days goes by) so Ca leaks of the bones cause brittle bones then fracture
- metastasis to the bones leads to hypercalcemia-renal stones/calculi so inc. OFI

Diagnosis

1. Serum protein electrophoresis – M- CHON – monoclonal protein
2. Urine protein electrophoresis – bence-jones CHON
3. CBC – (+) plasma cells – Normal confine in bone marrow
4. Bone marrow biopsy

Assessment:
Bone pain
Brittle bones (pathologic Sx)
B Sx
Bence-jones criteria – Urine and blood
Renal calculi

Mgt.:
Inc. OFI
Chemo/radiation
Palliative Care (pain mgt.)

Bleeding disorders

a. Idiopathic thrombocytopenic Purpura

- **Cause**: Unknown, Autoimmune
- **S/Sx.-**
- **Early**
  dry purpura- superficial bleeding
  petechiae, ecchymosis, bruises

Late:
Wet purpura- deep bleeding
Platelet count - <10-20,000
Hemoptysis, melena, epistaxis
Heavy menses (spontaneous bleeding)

- **WOF**- intracranial bleeding- severe headache
- **NI**: neuro vital signs
- **Mgt.**: Bleeding prec. BT-platelet concentrate, corticosteroids, immunosuppressants

b. Hemophilia – deficiency of clotting factors

- X-linked autosomal recessive (male)
- **A (classic)** -CF 8
- **B (Christmas dse)** – CF 9
- **S/Sx** : hemarthrosis – bleeding joints early Mx
  Early: reluctant to move a body part
  Late: Spontaneous bleeding; instability of the joint; shock
  Mgt:
  Cold compress
  Bleeding prec.
  BT-clotting factor concentrate (specific on what's missing) fresh frozen plasma or cryoprecipitate

Neutropenia and bleeding precautions:
Implementing neutropenia prec.

1. Thorough hand washing
2. Isolation-as much as possible private
3. No fresh flowers (stagnant water)
4. Change water in containers every shift
5. Low microbial diet- well cooked food; NO raw, fresh, milk; NO enemas, anything in rectum
6. Maintain skin integrity
7. Provide total body and oral hygiene
8. Maintain meticulous IV site care

Implementing bleeding prec.

1. Avoid anti-platelet medications
2. Avoid invasive procedures- IM injections, enemas (anything in rectum)
3. Avoid constipation- Inc OFI, fruits, veg, fiber
4. No flossing of teeth, no commercial mouthwashes
5. Soft-bristled toothbrush only
6. Toothettes for mouth care if platelets <10,000, if gums bleed
7. Discourage vigorous coughing/blowing of nose
8. Electric razor only
9. Pad side rails of bed
10. Trim nails short – Avoid nail clippers, cutter; OK with nail file
11. Use paper tapes

Therapies in blood disorders
Blood transfusion
Complications:

a. Febrile, non-hemolytic reaction- lab urine collection
b. Acute hemolytic reaction – 1st 15 min; hematuria and low back pain
c. Allergic reaction
d. Circulatory overload
e. Delayed hemolytic reaction- occurs 1-4 wks post transmission
f. Transmission of blood-borne dses – contamination

WOF- Shock! - dec. BP
Nrsg. Interventions:
Stop the transfusion (blood)
KVO (NSS)
Assess v/s
Notify MD
Send/bring blood prod/tubing to lab/blood bank

Transfusion of whole blood & packed cells
Guidelines:
Pre:

1. Confirm, check, verify
2. Explain
3. Baseline V/S
4. Standard precaution

Intra:

1. Obtain blood, double-check
2. Inspect
3. Adm. within 30 min – to prevent hemolysis, microbial infection
4. 1st 5 min- 5 ml/min
5. Monitor
6. Adm. time 4 hours max ->4hours- discard

Post:

1. Obtain v/s & compare with baseline
2. Dispose materials properly
3. Document
4. Monitor the client

IMMUNOLOGY

1. Natural/innate- ex. Skin

a. Present at birth
b. Non-specific
c. No memory

1st line of defense (natural)

- ✓ Skin/mucous membrane

- ✓ Secretions
- ✓ Acidity of the GIT & vagina
- ✓ Cilia

2nd line of defense (natural)

- ✓ Phagocytosis
- ✓ Inflammation & fever
- ✓ Anti-microbial substance

3rd line of defense (Acquired)

- ✓ Lymphocytes
  - a. T cells – cell mediated response (gen. effect. non-specific, wbc action)
  - b. B cells – humoral/antibody resp.- specific
- ✓ Antibodies

2. **Acquired/Adaptive**- ex. Chicken pox
   - **a.** Not present @ birth
   - **b.** Specific
   - **c.** Memory

Vaccinations- provided to allow body to develop antibody

- Live/ attenuated/weakened = **active immunity** = 2-3 months
- Ex. MMR, BCG, OPV, DPT

Immunizations – readily available; given upon exposure usually ending Ig – ex. EpIg -antirabies

Ab- antibody – Favir Ab = leads to **passive immunity**

Additional notes:

- **a.** **S**ubjective- reassess,"Story from pt."
- **b.** **O**bjective- implement,"Observe"

Allergic Reaction:

Allergy – inappropriate and often harmful response of the immune system to normally harmless substances

Allergic Disorders

1. **Anaphylaxis –** sudden and severe allergic reaction mediated by massive histamine release from cells;
   Inc. Histamine- PNS- vasoconstriction = dec. BP= bronchoconstriction = **PRIO**- airway
   DOC- epinephrine SQ/IM
   B-sting- Epi ASAP / wof- airway
2. **Latex allergy**- hypersensitivity to the proteins in the natural rubber latex or the various chemicals used in the manufacturing process of the latex
   Risk factors:
   1. Myelomeningocele (spina bifida)- highest
   2. Freq. exposure to latex: HC professionals, hairdressers, food handler, auto mechanic
   3. Allergy to tropical fruits (banana, avocado, kiwi, pineapple, chestnuts, passion fruit, strawberry)
   4. History of allergic skin disorders- atopic dermatitis, eczema

Diffuse Connective Tissue Diseases- autoimmune – connective tissue

I. **Systemic Lupus Erythematous (SLE) –** result of disturbed immune regulation that causes an exaggerated production of autoantibodies; Common: Black, Hispanics, Asians, post puberty 20-30, female, hereditary, obese

Assessment-

- a. Chest pain when taking a deep breath- pleuritic chest pain
- b. Fatigue
- c. Fever
- d. Skin rash – butterfly rash/malar rash
- e. Mouth sores
- f. Photosensitivity
- g. Hair loss
- h. Friction rub or pleural friction
- i. Lupus nephritis - common

Mgt:

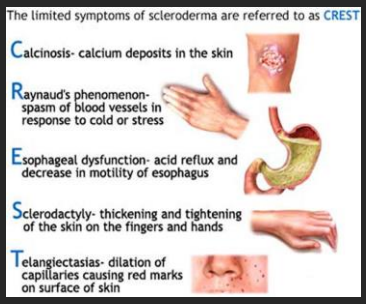
- a. Corticosteroids
- b. NSAIDS – except diclofenac/indomethacin- inc S/Sx of SLE
- c. Hydrochloroquine- anti-inflammatory; neutropenic prec; anti-malarial

Criteria in Dx SLE

1. Malar (over the cheeks of the face)- butterfly rash
2. Discoid skin rash (patchy redness with hyperpigmentation that can cause scarring)
3. Photosensitivity
4. Mucous membrane ulcers
5. Arthritis
6. Pleuritis or pericarditis
7. Kidney abnormalities (lupus nephritis)
8. Brain irritation (manifested by seizures and psychosis "lupus cerebritis")
9. Blood-count abnormalities
10. Immunologic disorder
11. Anti- nuclear antibody

II. **Scleroderma** – AKA firm skin fixed to tissue

- Autoimmune dse characterized by deposits of collagen and fibrosis of the dermis, subcutaneous tissue, and sometimes deep fascia; hardening/cold
- **Cause/trigger**: vasoconstriction; ass. with **Raynaud's phenomenon** – vasospasm
- **Assessment**-



- **Nrsg. Dx**.- impaired skin integrity
- **Mgt**.: corticosteroids

III. **HIV/AIDS** – universal precautions; neutropenic prec.

- a retrovirus, carries genetic material in ribonucleic acid (RNA), rather than DNA
- transmitted by way of body fluids that contain HIV or infected CD4 + T lymphocytes

Stages	Features
Initial/Acute	Flu-like Sx, body malaise, joint pain, fever
HIV Asymptomatic	No Sx; Start monitoring the CD4/ T helper cells >500 Normal, check progression
HIV Symptomatic	CD4 drop 200-499; pt mx candida infection (candidiasis); white or yellow patches (oral thrush)
AIDS/ End stage	CD4 <200; Aids defining characteristic

HIV positive

Dx- Elisa (2x +) confirmatory

Western Blot (1 +)

Manifestations:

Respiratory:

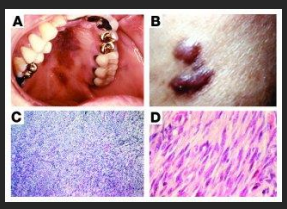
1. Pneumocystis carinii pneumonia, pneumocystis jiroveci
2. Mycobacterium avium complex
3. Tb

GI

1. Diarrhea- dec Na+ & K+
2. Oral candidiasis – fungal
   Mgt.- **Nystatin** – swish and swallow; **DO NOT** eat or drink at least 30 mins
3. Wasting syndrome – Cachexia (muscle wasting)
   - Give **megestrol (megace)** – progesterone
   - Zinc supp. – improve taste

Oncologic: = underlying cause= immunosuppression

1. Kaposi's sarcoma- red- purplish spot/lesions in the skin; Dx test- skin biopsy



2. B-cell lymphoma – non- Hodgkin's lymphoma

Others:

1. Cryptococcus meningitis
2. Herpes simplex

Antiretroviral agent:

Highly active antiretroviral Tx (HAART)

Zidovudine – A/E- bone marrow suppression/ myelosuppression

Effectiveness: viral load test- the lower the better

CARDIOVASCULAR SYSTEM

Atrium – damage – WOF- CVA, occlusion blood flow

a. Receives unO2 blood – Right
b. Receives O2 blood – Left

Ventricules- pump blood; Damage – CHF

a. Right to the lungs
b. Left to the system

Valves- prevents backflow and production of normal heart sounds

WOF: endocarditis

Mx: heart murmurs- passage of blood- abnormal valves

AV valves- lining endocardium

- Closing cause ventricular contraction
- S1- lub sound/ systole
- Damage of AV valves – prolapse or regurgitation, systolic murmurs

a. Tricuspid
b. Mitral/bicuspid

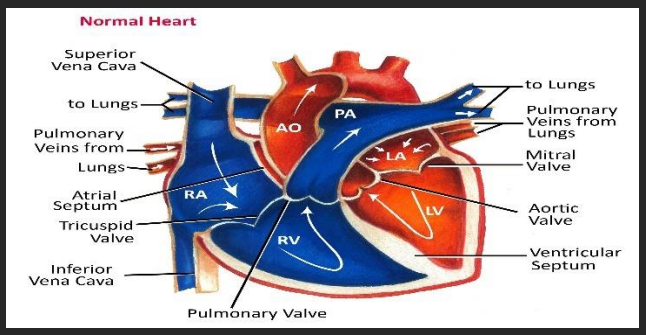
"Close-Open" Lub-Dub

Semilunar Valves – open, ventricular relaxation

- S2 sound, dub, diastole
- Damage to semilunar valves causes diastolic murmurs

a. Pulmonic valve
b. Aortic valve

Vein- (back) towards the heart
Artery- away from the heart

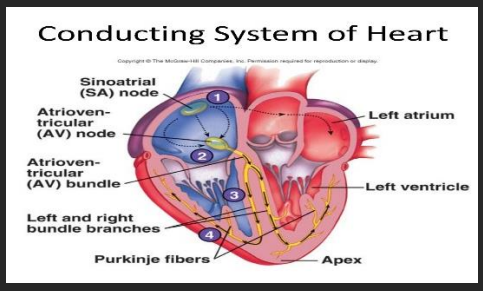


Conduction System of the heart

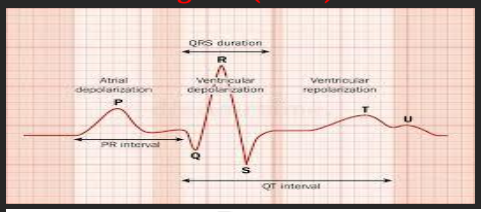
SA node – atrial depolarization/contraction

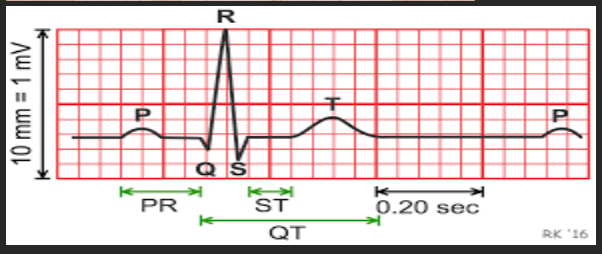
- 1°pacemaker =60-100bpm
- P wave then Ventricular edepolarization/contraction (QRS) then ventricular repolarization (T wave)-most sensitive part/vulnerable

SA node then to AV node then to Bundle of His (right and left) then to purkinje fibers from AV noede to purkinje fibers – ventricular depolarization/contraction the ventricular relaxation



Electrocardiogram (ECG)



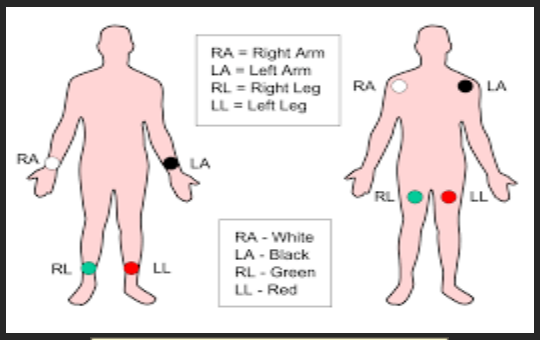


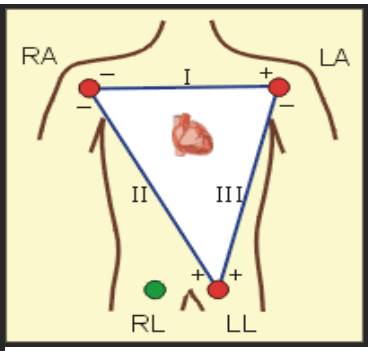
ECG parameters

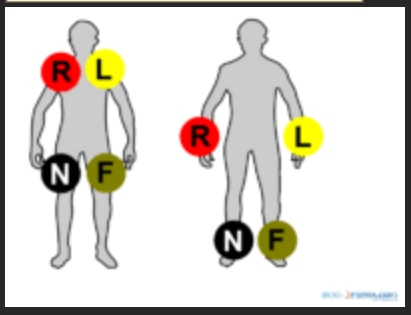
1. P wave- small, round and upright
2. QRS complex- narrow; 0.6-0.10sec approximately 1-2 small boxes
3. PR interval- QRS 2x- 0.12-0.20 sec- 3-5 small boxes
4. Rate- 60-100 bpm- if regular # of waves in a given 6 sec x 10 = 60 sec
5. Rhythm- regular/irregular

ECG

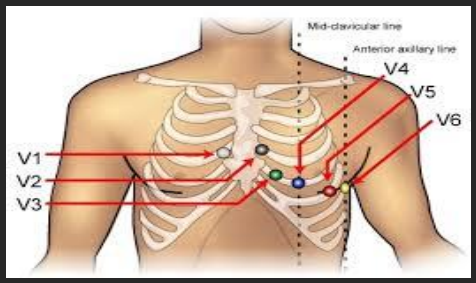
The limb leads



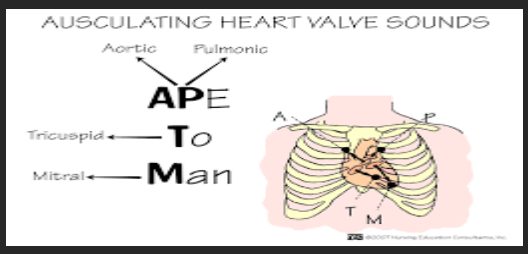


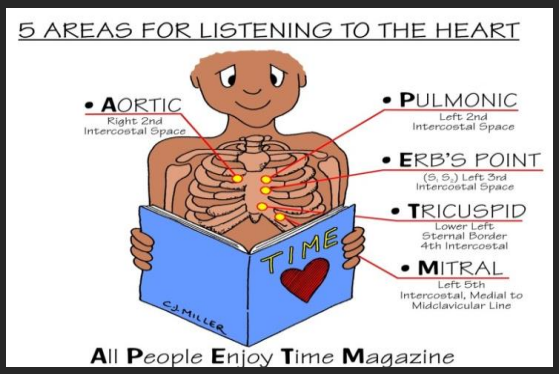


The Chest limbs



V1- 4th ICS R sternal border
V2- 4th ICS L sternal border
V3- midway V2 & V4
V4-5th ICS- mid-clavicular line
V5-Anterior axillary line
V6- Mid axillary line

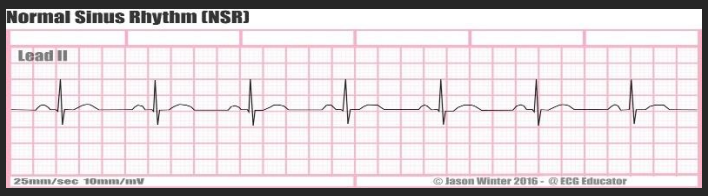




Sinus rhythms

SA node pacing

1. **Normal sinus**



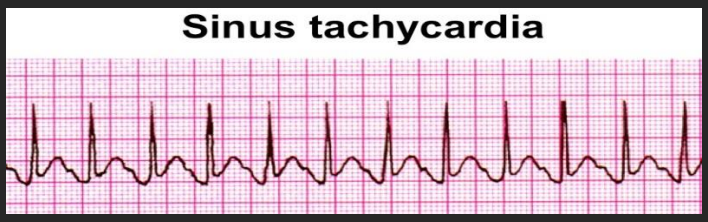
1. P wave - Normal
2. QRS complex - Normal
3. PR interval - Normal
4. Rate – 70 bpm- 100 bpm
5. Rhythm – regular

2. **Sinus bradycardia** – Normal- athletes and elderly
   - DOC- atropine SO4 (**stable**) – Inc HR
   - PRIO for **unstable**/emergency- dec. BP
     - Transcutaneous pacing-temporary inc. HR
       - Pacing- no bradycardia
     - Pacemaker-permanent

1. P wave - Normal
2. QRS complex - Normal
3. PR interval – 0.12-0.20
4. Rate – <60 bpm
5. Rhythm – regular

3. **Sinus tachycardia- DOC**-beta-blockers"olol"
   Ca channel blocker- "dipine"

1. P wave – Normal or partially hidden
2. QRS complex – Normal; .08 sec
3. PR interval – intermediate
4. Rate – >120 bpm
5. Rhythm – regular

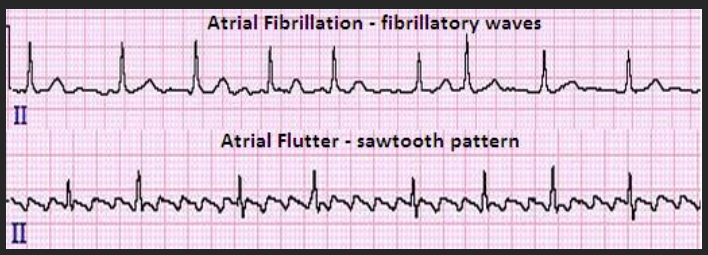


NOTE: if you cannot identify the P waves automatic NOT a sinus rhythm

Atrial rhythms – SA node fails! Impulse coming fr AV node; Abnormal P waves Normal QRS

1. **Atrial flutter –**saw tooth
   DOC-stable- Na channel blockers- procainamide and quinidine
   - **Unstable** – cardioversion – unstable tachycardia with pulse

1. P wave – abnormal
2. QRS complex – Normal
3. PR interval
4. Rate
5. Rhythm – regular (QRS)



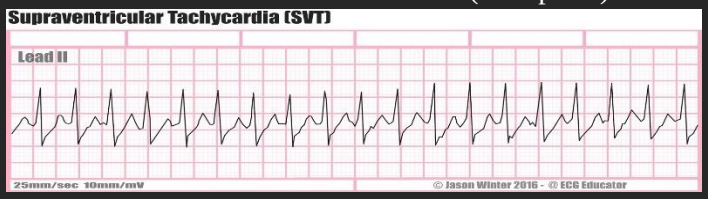
2. **Atrial fibrillation-(chaotic)** Same mgt/doc with atrial flutter and additional Na channel blockers + thrombolytics + anticoagulants + antiplatelets
   - Inc. risk for thrombus = fibrillation = stasis in the heart = thrombus/clot = dec O2 = CVA

1. P wave – none/abnormal
2. QRS complex – Normal
3. PR interval
4. Rate
5. Rhythm – irregular/**chaotic** (QRS)

3. **Supraventricular tachycardia (SVT) – (bizarre)** p buried t wave; p wave unidentified
   - **DOC- stable** – Adenosine- 1st line drug
     Beta-blocker

Ca channel blocker

- **Unstable**- cardioversion (with pulse)



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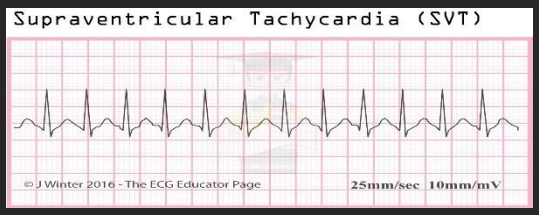
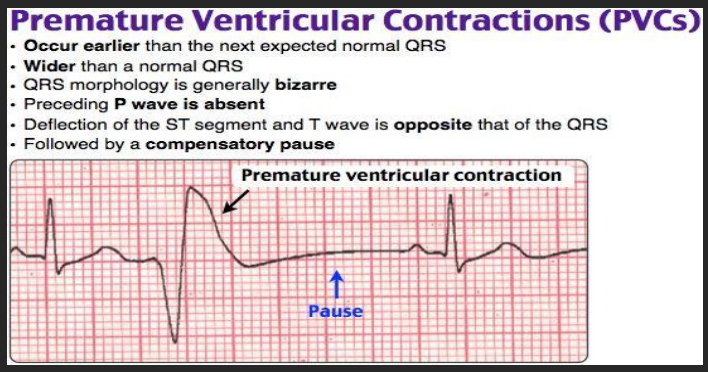
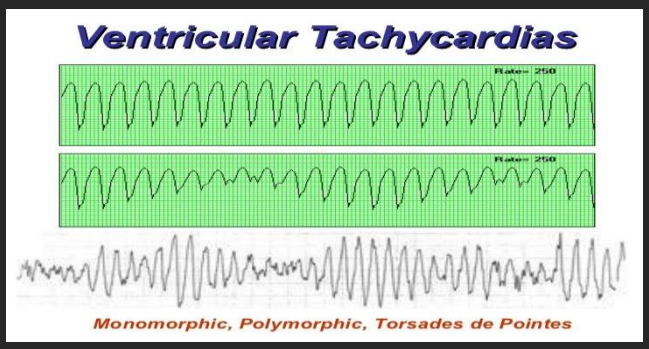


Ventricular rhythms – SA node & AV node fail!
Ventricles will shoulder responsibility of pacing the heart

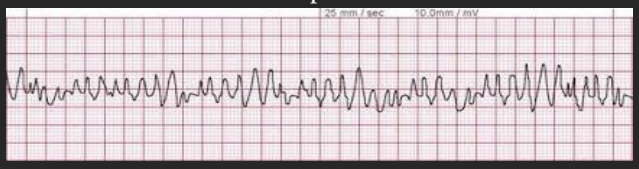
1. **Premature Ventricular Contraction (PVC)** –
   DOC-Na channel blockers-
   Lidocaine/Amiodarone
   O2 Supp
   ***Refer** 3 or more consecutive PVC leads to V tach./ non sustained V tach ; > 6 in a min or intermittent PVCs in a min



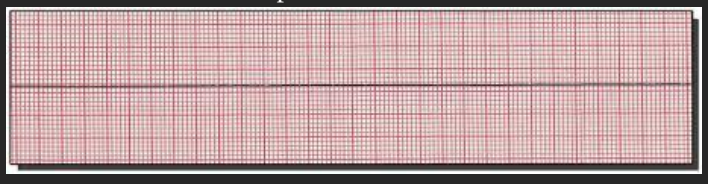
2. **Ventricular Tachycardia** – wide QRS
   Mgt: monomorphic V tach- single foci
   a. Pulseless- defibrillation
   b. With pulse- cardioversion
   c. Lidocaine
   Mgt: polymorphic V tach – multiple foci
   - **Ex. Torsade's de pointes** – dec Mg so give MgSO4



3. **Ventricular Fibrillation** – no pulse / no QRS/chaotic
   Mgt- **D**efibrillation
   Epinephrine
   Amiodarone
   Lidocaine
   MgSO4
   Before with vasopressin



4. **Asystole – Mgt:** CPR + intubate
   - **Compression**- push hard & fast- rate 100-200/min
     Depth: Adult- 2-2.5"
     Child - 1.5-2"
     Infant- 1.5" -1/3 of anteroposterior chest diameter
   - **Airway**
   - **Breathing**
   - **DOC: epinephrine**
     - Do not defibrillate as long as asystole
     - Ok with pulseless V-tach or V-fib



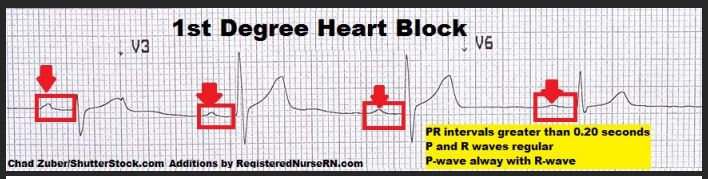
Heart Blocks
Causes: ischemia; Inc. beta blockers
Mgt: atropine; pacemaker – no blockage, permanent

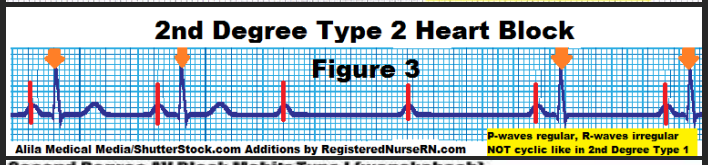
Heartblock algorithm

PR interval – prolonged (>.20 sec)
Constant (same) – P:QRS
a. P = QRS - 1° AV block; 1st/early-atropine SO4
b. P>QRS - 2° type II (Mobitz II) – dropped beat; no QRS sometimes

Variable (irregular) – reset (another Normal PR interval)

a. With reset - 2° type I (wenkebach/Mobitz I) – with cycle
b. Without reset – complete heart block -3° heart block





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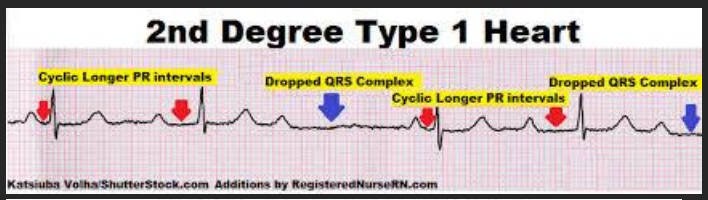
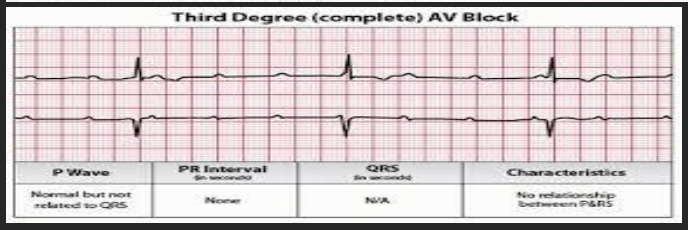


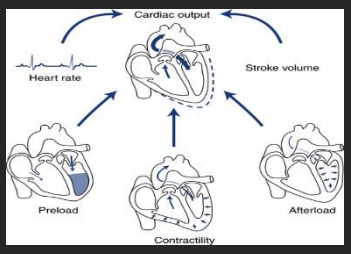


Managing Dysrhythmias: Modalities

Antidysrhythmic Drugs	
Class I-Na-channel blockers Atrial – **procainamide, Quinidine** Ventricular- **Lidocaine** **S/E: DAN** Diarrhea Abdominal cramps N/V	**Class II- beta-blockers "olol"** PNS effect WOF: Bronchospasm Bronchoconstriction CI. Asthma, COPD, wheezing – Mx-bronchoconstriction
Class III – K+ channel blockers **Amiodarone** – S/E prolonged use -bluish discoloration of the skin ***AVOID – St. john's wort** – herbal meds, antidepressants – dec effectiveness	**Class IV- Ca+ channel blockers "-dipine"** **Verapamil** **Diltiazem** *** AVOID- grapefruit juice,** potentiates or aggravate hypotension

	Cardioversion	**Defibrillation**
Indication	Unstable tachycardia	Pulseless & unresponsive
Purpose	To temporarily stop the heart to convert to stable rhythm; * synchronize to R wave	To contract the heart
Voltage	50-100-150-200 joules	3x 1st -200 2nd – 300 3rd – 360
	Automated external defibrillator (AED)	**Automated internal defibrillator (AID)**
Procedure	**1.**Turn ON 2. Attach the chest pads 3. Push analyze button 4. Announce clear 5. Wait for shock to be delivered 6. 3x shock- if needed	With pacemaker 1.If shock deliver **(REFER!)** 2.Keep diary ADL's-to determine factors that trigger defib. 3. NO MRI, high voltages electricity, contact sports to prevent dislodge

Artificial Pacemaker	**Holter Monitor**
1.Count heart rate and PR daily 2.Dizziness- REFER!-sign dec. cardiac output 3. NO MRI, electric devices, no contact sports, at least 6 inches - contact 4. Battery-10-20 years life span	Ambulatory ECG- 24-48°monitoring *interfere -electric devices -wetting- swimming, complete shower, profuse sweating Battery – AA- change every 24hours



Disorders in the heart

A. Coronary artery dse – common among Caucasians, female, inc. cholesterol= dec HDL (good) & inc LDL(bad) leads to plaque formation leads to atherosclerosis then dec. O2 to myocardium leading to MI

Cardiac catheterization – coronary angiogram
Done: cath lab with local anesthesia
Assess: femoral ARTERY
Prior: asked allergy to shellfish to avoid anaphylaxis; if allergic to shellfish its ok but you have to give anti-histamine; if renal-use other contrast agent
Post:

1. Provide pt with sand bag over access site to prevent bleeding & clot
2. Keep affected leg straight 4-6 hours
3. Keep CBR 1st 12°without bathroom privileges
4. WOF: absent distal pulses (-)

Common sign for both "chest pain"

Angina	**Myocardial Infarction (MI)**
<20 min chest pain	>30 min (not relieve by NTG)

1. **Stable** – occur with activity esp strenuous 2.**Unstable**- even @ rest require confinement 3.**Prinzmetal**- even @ rest require confinement; variant- same hour hr a day **DOC**: vasodilator – 1st line - NTG **Other**: isosorbide **S/E**: dec BP = before and during drug administration = dizziness (sit, lying, rest) = headache **NTG**- sublingual, store in dark bottles (drug photosensitive), six months – effectiveness - take 1tab post pain another 1tab every 5 min (3x) only - **AVOID:** 1. sildenafil (Viagra) -potent vasodilator; lead to fatal hypotension 2. alcohol- inc. S/E **Transdermal** -patch - chest-non-hairy - 12-16 hours indicated - 24 hours changing - 8hour patch free period – to dec. tolerance, ideally at night time	1. **Ischemia** – dec. O2, Inc. lactic acid, T wave inversion 2. **Injury**-inflammation Troponin I- most sensitive CK-MB Myoglobin WBC ESR C-reactive protein - ST segment elevation 3. **Infarction** – necrosis - severe depletion of Q wave AKA pathologic Q wave - Mgt: **M**orphine SO4 **O**2 **N**aloxone (Narcan-antidote) **A**spirin *complete relief of pain so report even with slightest; even 1 out of 10; **Chest pain** with MI – REFER! For MI Dysrhythmias – leading cause of death

D.O.C. for Vasoocclusion

AntihyperLIPIDemics

1. **HMG-COA Reductase inhibitor-** "statins"
   - **T**eratogenic
   - **L**DL dec
   - **I**nc. HDL
   - **P**m/@ night time
   - **I**nc. cholesterol synthesis
   - **D**O- inc. function test (hepatotoxic)
     - Annual eye exam- cataract
     - **Report**- muscle weakness-sign of **rhabdomyolisis** – breakdown of muscle tissues
2. **Fibric Acid Derivatives** – Gem**fib**rozil, Feno**fib**rate
   - **Action**: dec. triglycerides
3. **Bile acid sequestrants** – Cholestyramine (Questran), bind with fats and excreted via stool

   S/E: constipation- dec fat soluble vit ADEK

Antiplatelets	**Thrombolytics/fibrinolytics**
Aspirin Clopidogrel Dipyridamole Ticlopidine **A/E**: bleeding **S/E**: GI irritants – with or post meals	"clot busters" "kinase", "phase" Streptokinase Altephase **A/E**: bleeding Antidote: Aminocaproic acid (amicar) *given to MI pt within 6°onset only

Anticoagulants- prevents clot formation

Alert common in NCLEX

- Blood thinners

Heparin – aPTT/PTT- Route: IV

- Clotting time: Normal therapeutic value- 1.5-2.5 X normal / > normal
- With heparin- increase Normal but still NO bleeding
- aPTT- Normal – 20-36 sec. (thera. Range (T.R.)- 60-80)
- clotting time – Normal 5-10 min = 16-20 mins
- antidote- protamine SO4

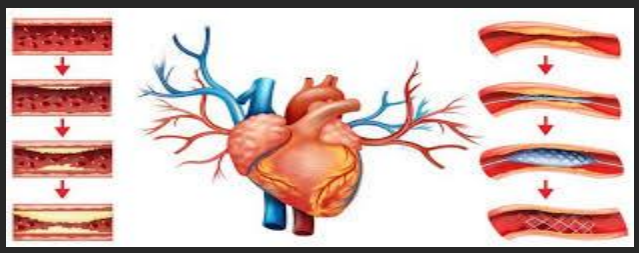
Warfarin- oral

- inc. alert medic, require safeguards, double check with other RN before adm.
- Normal PT- 9-12 sec (T.R = <30 sec)
- INR-2-3 sec (T.R. = 4.5 sec)
- Antidote: Vit K.

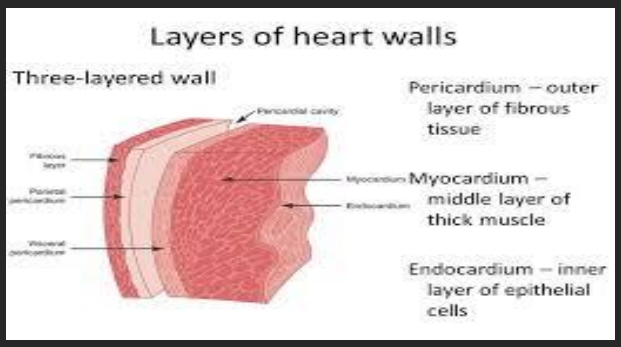
Enoxaparin_SubQ_use as a maintenance, No antidote but if ask same with heparin

Treatment for CAD

a. **Percutaneous Transluminal Coronary Angioplasty (PTCA)** – "plasty"-repair
   - Stent to keep the blood vessel open
   - with stent – post surgery – antiplatelet therapy
   - cath lab with local anesthesia
   - for milder case



b. **Coronary artery bypass graft (CABG)**
   - Done – OR with general anesthesia
   - Graft; saphenous vein (leg)
   - Post-pro.: attach to drain
   - CTT/mediastinal tube <100 ml/hr
   - Post 1st 2 hours – CBR & progress activity depending on rehab
   - Coronary arteriography – **common comp**.- hemorrhage; **S/Sx**: shock

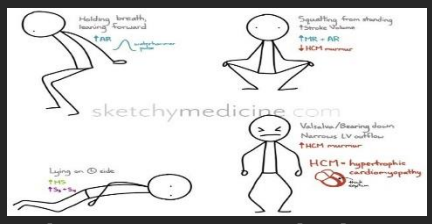


Pericardium – something to do with the pericardial fluid
Pericardial sac/space – 30 ml- to prevent friction during contraction
Myocardium- Muscle layer, for contraction. pump
Endocardium – lines the valves

Inflammatory heart diseases

- Generally, cause by: URTI- strep and staph. – Mgt: Penicillin and vancomycin; autoimmune – corticosteroids- anti-inflammatory

Endocarditis – "valves"; vegetation- accumulation, clots, fibrin and thrombus leads to murmurs and infective emboli, in the skin: purpura, petechiae and nodules **(**janeway's node – nodules in the fingers or lesions which is painless**)**



- Pt with vegetation on mitral valve reports sudden left foot pain, no pulse palpable in Left foot, cold, pale. **Action: REFER!**

Arterial occlusion needs balloon angioplasty surgery

Myocarditis "muscles" – dysrhythmias or ischemia – chest pain with persistent fatigue.

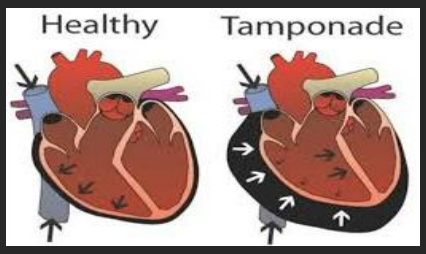
Pericarditis "pericardial fluid" – dec. amount of pericardial fluid leads to pericardial friction rub which inc. pain esp. supine & inhalation so dec. BP, JVD

- Severe cases if left untreated **WOF: Cardiac tamponade**
- **Snow storm** -x-ray for fat embolism

Cardiac tamponade- > pericardial fluid leads to pericardial effusion, distant muffled heart sound, >30 ml fluid which compresses the heart, so cardiac output decreases leads to shock – hypo, tachy, tachy, altered LOC, pulsus paradoxus = dec. systolic BP during inhalation; congestion- JVD, inc. CVP

Mgt.

Pericardiocentesis
O2
IV vasopressor – inc. vasoconstriction, dec. to relieve S/Sx of shock ex. Norepinephrine drip



Congestive Heart Failure – failure of ventricles

- *most useful monitor – B-type natriuretic peptide
- Pt with SOB, fatigue possible HF

Left-sided Heart Failure – Lungs (backflow)

- Bibasilar crackles
- DOB- Paroxysmal nocturnal dyspnea – DOB at night
  - Orthopnea – DOB lying supine
- Frothy sputum – non-productive cough-hemoptysis
- Dec. Cardiac Output leads to dec. LOC or dizziness (brain) and oliguria (kidney)

Right-sided Heart Failure – System (backflow)

- **IVC**-inferior vena cava
  - Hepatomegaly – RUQ pain
  - Ascites
  - Inc IVF
  - Dependent edema
- **SVC**- superior vena cava – Inc ICP and dec. LOC
  - Periorbital facial edema
  - JVD
  - Pulmonary edema
  - **Mgt- MORFUN**
    - **M**orphine
    - **O**2
    - **R**est: high fowlers
    - **F**oley cath
    - f**U**rosemide
    - **N**TG

Medical Mgt:

- Prob. Dec contractility and inc blood volume
  1. **Digoxin** – 0.5-2 ng/ml
     (+) inotropic – inc contractility
     (-) chronotropic- dec HR
     Hold if HR < 60 bpm – adult, <100 infant

- **Assess HR & PR** daily full minute
- **WOF: hypokalemia- inc toxicity**
  Visual disturbances
  Anorexia (1st)
  N/V
  Diarrhea
  Abdominal cramps/pain
- **Antidote: Digibind**

2. **Dobutamine/Dopamine** - (+) inotropic/ chronotropic
3. **Diuretics**- if taken with digitalis expect to use K+ sparing

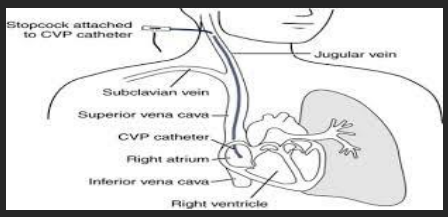
Muga scan- AKA myocardial perfusion scan/imaging

- * NO iodine
- With radioisotope IV tracer
- CI: pregnant
- AKA: Thallium Scan- with technecium

Measurement of Heart Function

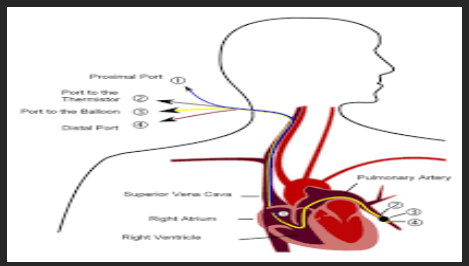
CVP- N- 5-10 cm H2O
3-8 mmHg
Measure: Right heart function

- End of right heart
- Inc CVP- FVE
- Dec CVP- FVD



PCWP – N-8-12 mmHg
Measure: Left heart function

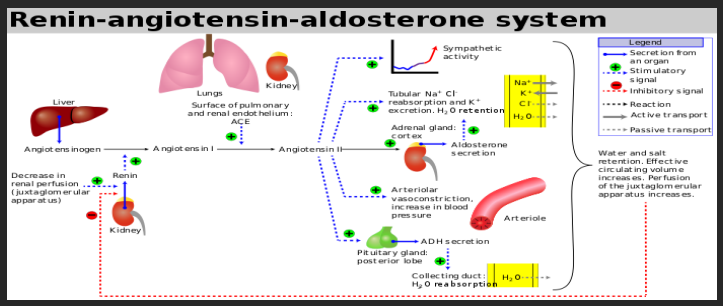
- Swan-ganz cath-balloon cath tip is in pulmonary artey
- Inc PCWP- pulmonary congestion
- Dec PCWP- shock



Disorders of the Blood Vessels – in general WOF
Orthostatic Hypotension

I. Hypertension

RAAS activation or Renin Angiotensin Aldosterone System



DOC:

ACE inhibitor "-pril"
An hour before meal
Cough (dry, persistent & irritating)- **REFER!** So they can use an alternative drug
Edema eyes and face / **E**levate K+
WOF: Inc K+ - A/E - REFER!
No salt substitute – rich in K+

ARB-Angiotensin II Receptor Blockers "sartan"
WOF: Inc K+

A1 adrenegic blockers "zocin"
Ex. Prazocin (minipress)

Beta-blockers "olol"

Ca+ channel blocker "dipine"

Diuretics

II. Abdominal Aortic Aneurysm

- **Walking time bomb**
- Clot, plaque, thrombus = pulsating abdominal mass **(DO NOT palpate – inc. rupture-aneurysm - SHOCK)** = worsened by HTN = thinning arterial wall = inc. risk impending rupture
- **S/Sx:** dec back pain/pelvic pain or flank pain **(warning/impending sign)** sudden relief = rupture so pt will expire = **REPORT!**
- **Mgt:** "statins" "thrombolytics" "anticoagulants" "antiplatelets" "anti-hypertensive meds"
- **Best- ASAP-**
  Surgery: Endovascular Stenting

III. Disorders of Peripheral Vascular System

Arterial	**Venous**
Too low perfusion	too much perfusion
Skin- cool	skin-warm
Pale	flush/redness
Pulseless	Swollen, bounding pulses

Arterial Disorders

1. **Peripheral Arterial Dse** – CAD = intermittent claudication (pain with activity)
   - **Mgt.: CBR** 5-7 days
   - **DOC:** Statins
     Thrombolytics
     Anticoagulants
     Antiplatelets
     NSAIDS
2. **Buerger's Dse "thromboangitis obliterans"**
   - Common among **B**oys, **B**ilateral, **B**aba (leg)
   - **Duc:** smoking / auto-immune = vasculitis (persistent redness of the lower extremities) = stasis = thrombus = dec O2 = gangrene = amputation
   - Combination with peripheral arterial dse
   - **Mgt:** thrombolytics, corticosteroids
3. **Raynaud'd Dse**
   - Female, hands and fingers
   - White(pale)-blue(cyanosis)-red (rubor or flush-sudden gush of blood) phenomenon
   - Cause: cold climate/temp, stress leads to vasospasm (initial constriction of vessels- dec. blood supply) – White blue red P.
   - **DOC**: Ca+ channel blockers – reverse vasospasm, gloves

Venous Disorders

SVC Syndrome:

- Oncologic emergency
- Severe complication cancer
- Ex. Lung carcinoma = obstruction/congestion SVC
- Late – Inc ICP & dec LOC
- Early: periorbital/facial edema, JVD
- Chest pain, DOB, non-productive cough
- Edema & flushing upper extremities
- Generalized cyanosis below
- **Mgt.:**
  Chemo
  Diuretics
  Corticosteroids
- Position: semi-high fowlers
- **Avoid** Bp & venipuncture of the upper extremities

DVT- Deep Vein Thrombosis

Cause: due to prolong immobilization = stasis = thrombus = dec. venous return or congestion = swelling (calf circumference reddened/flush/warm), bounding pulses, (+) homan's sign – calf tenderness

- **Mgt:** thrombolytics if diagnose avoid ambulation to prevent dislodge (early ambulation), bed rest, anti-embolic/TED stocking, **D-dimer test** – detect clot formation

Varicose Veins

- Prolong standing = incompetent veins = pedal cramps = popliteal = vein dilation (spider veins)
- Teaching: **NO** crossing of legs and **NO** tight jeans
- **Tx: Sclerotherapy** -inject agent to dec. vein
  Laser
  Vein stripping / Ligations

PSYCHIATRIC AND MENTAL HEALTH NURSING

I. Tips in Answering Psychosocial Integrity Questions

- **SAFETY** – psychiatric, danger or emergency
- Encourage verbalization of feelings (thera. com.) – if pt is out of danger, during admission
- For delusional pt. - Present reality, Acknowledge, Allow verbalization of feelings
- Promote/remind self-care and adaptation skills- assist pt with ADL's/ physiological needs (circulation- in catatonic state)
- Avoid touching autistic pt

II. Introduction to Psychiatric Nursing

Therapeutic Communication

- Is a priority but only after a client is out of immediate physical danger
- Always consider developmental, cultural, and physical variables when responding
- Always ask open-ended questions and seek for more information (not yes-no)
- Always stay in here and now! Keep **focused** (depressed pt, manic pt, crisis) on issues at hand, refocusing
- Never assert personal opinion about anything or anyone
- Using silence
- Restating or reflecting

- Exploring
- Making observations

Non- Therapeutic Communication

- Ignoring the pt
- Flattery
- Advising. "You should do this" – No to battered wife syndrome
- Giving opinion/telling the pt what to do "In my opinion, you should"
- False reassurance "Don't worry everything will be alright"
- Changing the subject
- Challenging
- Giving approval or disapproval
- Belittling "Don't be concerned too much, everyone else feels the same" – always validate the concern or feelings
- Judging "It's your mistake. If you had only listened to the doctor"
- Defending "All the nurses here are great"
- WHY? – not good for asking feelings, never put pt into a defensive state, depending on the situation- OK for simple facts

Conceptual Frameworks

Structures of personality

a. Super ego – the conscience, morality principle
   - ↑ OCD
   - Depressed
   - Anorexia
   - ↓ Antisocial

b. Id- the pleasure principle, avoid pain
   - ↑ Manic pt- very restless
   - Antisocial – they violate rules
   - Narcissistic – too loving
   - Addictions
   - ↓ Anhedonia- too little preference with ID – inability to experience pleasure

c. Ego – the reality principle, balance Id and super ego

For schizophrenia and schizophreniforms

- ✓ Psychosis marked X reality
- ✓ Ambivalence X balance

Schizophreniforms

- Schizoid personality disorder "loners", naturally detached
- Schizotypal personality disorder "eccentric", magical thinking, very superior

Psychosexual (Freud)

a. Oral- Infancy
b. Anal – toddlerhood
c. Phallic(oedipal) – Pre-school
d. Latency (quiet stage)- School age
e. Genital – adolescent and young adulthood

Psychosocial theory (Erickson)

Age group	+Value	-Value	Factor
0-18mons – infancy	Trust and safety, oral fixation	Mistrust, paranoid personality disorder (suspicion) overgratification-gullibility	Satisfaction of needs thru feedings
18 mons-3 yrs Toddlerhood	Autonomy Independence	Shame vs doubt-dec self-esteem-depression Dependence	Toilet training Adequate- good impulse control Too lax- impulsive(manic) Too Strict- OCPD
3-6 yrs Pre-school	Initiative	Guilt	Sexual curiosity, conscience develop @ 5 so best time to teach the child the appropriate social behavior Antisocial- if not prevented
6-12 yrs School Age	Industry and competence	Inferiority complex	Learning
12-20yrs Adolescence	Identity Emotional stability & long-term thinking	Role confusion, emotional immaturity, short term thinking	Vocation, Body image disturbance-Anorexia/ Bulimia Equate love with sex
20-35 yrs Early adulthood	Intimacy, The pt able to give and receive love, interpersonal	Isolation Withdrawn	Relationship
35-65 ys Middle adulthood	Generativity Give support to self and others	Stagnation-depression Self-centered	Support
65 yr up Older adult	Ego integrity Fulfillment	Despair Regrets	Satisfying past

Human behavior

- Purposeful attempt to meet needs (biologic and psychological)
- Meaningful, attempts to communicate the meaning
  - 90 % - non-verbal
  - 10 %- verbal

- Response to stimulus
- Learned – permanent change
  - We learn to inc reinforcement (Positive-reward, Negative-temper tantrums) vs punishment (dec/stop induce pain and fear)
- Lying – loud (speak) anxious (slow voice), look for pattern of behavior, Anxious

Defense Mechanism (DM)

- Unwanted or painful stimuli = inc anxiety/tension = triggers use of defense mechanism = **Normal** = purpose-dec. anxiety until no more actions necessary or to maintain equilibrium; **Adequate use**= acceptance -problem resolution or maintain equilibrium; **Overuse** – no acceptance, no resolution =psychopathology, results to inc anxiety, depression, trauma

I. **Primitive DM**

- Do little to try and resolve underlying issues or problems
- Less effective over long term
- Very effective for short term, hence are favored by many

a. **Conversion** – expression of intrapsychic conflict symbolically through **physical symptoms**
   - Ex. A student develop diarrhea on the day of NCLEX-exam

b. **Denial** – conscious refusal to accept reality or fact acting as if painful event, thought or feeling did not exist, common for alcoholic
   - Ex. A person who is functioning alcoholic will simply deny they have a drinking problem, pointing to how will they handle their job and relationship

c. **Dissociation** – Separation and detachment of emotional significance & affect from an idea or a situation, common- PTSD
   - Ex. A client grins & chuckles when telling about his automobile accident and its tragic consequences

d. **Projection**- attributing intolerable wishes, feelings and motivations to other persons
   - Ex. A reviewee blames the review center for his failure in the board exam

e. **Regression** – returning to an earlier and more comfortable level of adjustment
   - Ex. A 4 years old begins to wet his pants following the birth of his baby brother

f. **Reaction formation**- developing conscious attitude and behaviors that are the opposite of what one really feels or desires to do
   - Ex. A woman who is very angry with her boss and would like to quit her job may instead overly kind and generous toward her boss and express a desire to keep working there forever

g. **Supression** – the conscious, deliberate forgetting of unacceptable or painful thoughts, ideas and feelings
   - Ex. A young woman says she is not ready to talk about abuse as a child

II. **Less Primitive, More Mature DM**

- Step up from the primitive DM
- Employed mostly by adults

a. **Displacement**- redirection of emotional feelings from original idea, person or object to a less threatening one
   - Ex. A superior berates a head nurse, and when she goes back to the unit, speaks harshly to the staff

b. **Identification** – the unconscious attempt to change oneself to resemble an admired person
   - Ex. An adolescent dress like a rock star & mimics his behavior

c. **Rationalization** – An attempt to make unacceptable feelings and behavior acceptable by justifying the behavior; making logical excuses
   - Ex. A student fails the examination and says the lectures were poorly organized

d. **Repression** – involuntary & unconscious forgetting of unbearable ideas and impulses
   - Ex. An accident victim does not remember the details of an accident

e. **Substitution** – Replacement of an unacceptable need, attitude or emotion with one that is more acceptable
   - Ex. A woman rushes into marriage following a breakup with her bf

f. **Undoing**- an attempt to actually or symbolically take away a previously consciously intolerable action or experience
   - Ex. A mother who has just punished her child gives him a cookie.

III. **Mature DM**
- Most constructive and helpful
- May require practice and effort to put into daily use

a. **Compensation**- an attempt to make up for real or fancied deficiencies
- Ex. A high school student does poorly in academics but becomes a talented artist

b. **Sublimation** – Diversion of consciously unacceptable instinctual drives into personally & socially accepted areas
- Ex. Strong sexual urges are diverted into creative arts like painting and sculpture

Phases of therapeutic Nurse-Patient Relationship

Goal:

Pre-interaction Phase- Self-exploration
- **Major Task: Develop Self-awareness**
- Initial NI: show of acceptance/neutral
- Countertransference- nurse reminded of someone she knows

Orientation Phase
- Establish rapport and develop trust (first few days)
- Establish a contract, define goals – set a sched of meetings
- Prepare to mention termination of a relationship – prevent separation anxiety
- **Major task: develop a mutually acceptable contract**
- "I will meet you from 10 am-12 nn for 2 weeks"

Working Phase
- Promotes acceptance, expression of feelings
- Promotes coping mechanisms
- Inc. Independence
- **Major Task: identification and resolution of the pt problems**
- Anything related to pt problems; Identify; resolve/interventions

Termination Phase
- Summarize, evaluate outcome
- Gradual weaning process
- Encourage client to discuss feelings about termination (final and clear)
- **Major Task: Assist the client to review what he/she has learned and transfer his learning to his relationship with other**

Mental status examination

a. **General Description** – general physical appearance of pt

b. **Mood and Affect-** emotional expression/state
- **Blunted**- severe reduction of emotional expression
- **Flat** – no reaction
- **Labile** – mood swing/ extreme emotional change
- **Inappropriate** – opposite emotional state

c. **Speech** – rate and tone

d. **Perception** – senses are involved "sees, perceives, hears, feels, taste, smells"
- **Hallucinations** (auditory, visual, olfactory, gustatory, tactile), without stimulus
- **Illusions** – with stimulus
- ***Nrsg Dx: Alteration in sensory perception**

e. **Thought**- disturbance to how pt think

Thought process
- **Clang associations** – rhyming of similar sounding words; repetitions of words or phrases that are similar in sound but in no other way
- **Flight of ideas**- rapid shifting from one topic to another, with train of thought; a constant flow of speech in which the individual jumps from one topic to another in rapid succession; Manic
- **Looseness of associations** – Without thought; Schizophrenic; free-flowing thoughts that seem to have little or no connection to one another
- **Neologisms**- coining of new words; newly invented words, having no public, consensual meaning
- **Thought blocking** – suddenly stopping in the stream of thought for no apparent reason, with no recall of the topic
- **Word Salad** – mixture of incomprehensible thoughts; an incoherent, incomprehensible mixture of words, phrases, consisting of both real and imaginary terms

***Nrsg Dx: Alteration in thought process**

Thought Content
- **Delusions of grandeur** – fix false belief; DO NOT encourage verbalization of feelings, far from reality, resistant to logic/reason; inflated sense of self appraisal

- **Delusions of persecution** – common among paranoid schizophrenic

***Nrsg Dx: Alteration in thought content**

- If no senses are involved- disturbance in thought and thinking

f. **Abnormal Motor Behaviors**

a. **Echolalia**- inner compulsion to repeat other people's words
b. **Echopraxia** – repeat another people's action
c. **Waxy flexibility** – the pt possibly allows examiner to move his limbs

Modes of care

- **Milieu Therapy** – envi. Modification/most effective: drug/subs abusers, rape; remove pt in the same envi.; anxious, suicidal
- **Psychotherapy** – focus on exploring past childhood experience & how this affect present behavior
- **Behavior modification** – focus changing current behavior without exploring the past thru reinforcement and punishment
- **Cognitive Therapy**- focus on the pts **thoughts** and how it affect **feelings** = **actions/behavior** = consequence/consciousness; Anxious- teach pt relaxation tech thru guided imagery or deep breathing exercise; Depressed pt; Alzheimer's- reminiscence therapy
- **Group development/ Group therapy** - 8-10 members with same condition; #1 goal provide acceptance & support (al-anonymous-for the alcoholics, al-anon-wife, al-a-teen-children)

Psychiatric Disorders

- Classified in Diagnostic & Statistical manual for mental disorders (DSM-V) that are most likely to appear on the NCLEX-RX
- Admission to mental health institution could be voluntary or involuntary

-**Voluntary**- want to discharge = YES but there's a grace period 48-72 hours reassessment with MD; Good-OK; Bad- No involuntary commitment status

-**Involuntary**- Client poses a threat to himself and others, with informed consent and refusal to treatment, if disruptive we can give a medication within 24 hours

All pts rights are retained except for the right to leave the Institution.

Phone Call privileges are **remove** if the client exhibits harm to self and others – needs Dr's order or court order

Anxiety- subjective feeling of apprehension, dread, or impending doom

- **Cause:**
  1. **Endogenous**- within, biological or neurochemical, brain structure is the problem/ imbalances of the brain; Gamma Amino Butyric Acid (**GABA**) -inhibitory neurotransmitter
  2. **Exogenous** – cause is environmental
  3. **Psychodynamic** – ineffective coping mech.
- **Levels of Anxiety**
  1. **Mild** – inc. focus; NI: acceptance & continue freq monitoring
  2. **Moderate** – dec. focus; NI: encourage verbalization of feelings, relaxation tech
  3. **Severe** – no focus; therapeutic silence, PRIO: safety
  4. **Panic**- no focus; PRIO: safety; stay silent; simple instructions; stay with the pt; stay calm; element of fear to a specific stimulus
- **Mgt:**
  1. Provide safety
  2. Assist in minimizing the pts anxiety-deep breathing
  3. Encourage verbalization of feelings
  4. Pharmacotherapy - anxiolytics
  5. Psychotherapy
  6. Milieu therapy
  7. Behavior modifications

Anxiety Disorders

- Recapturing of anxiety – provoking stimulus = re-awakening of unwanted thoughts, feelings, experiences from the past memory

1. Phobia- irrational fear – specific;

Cibophobia- fear with food

Agoraphobia – open spaces

Mgt:

- Provide acceptance
- Teach relaxation tech
- Therapy – Systemic desensitization- gradual

	Gen. Anxiety Disorder	**Panic Disorder**
Onset	Chronic	Acute
Duration	>3 mons	10 min/episode
Gen. description	Excessive worrying about daily concerns	Fear of going crazy

S/Sx
Paresthesia
A feeling of choking for no reason
N/V
chIlls
Chest pain

Mgt is same with anxiety

OCPD – no rituals, rigid personality; they lack insight of what their problems is

OCD

- Obsessive – thoughts
- Compulsion- Actions
- With rituals
- Insight/awareness
- Prob: Control of urges
- Prob: Activity itself
  - Time consuming
  - Physiological need is affected
- **Mgt:**
  - Initially provide time for rituals
  - Ensure physiological needs met
  - Working phase- explain changes in routine (set limits) dec freq. and time
  - Reinforce the non-ritualistic behavior
  - Assist the client in connecting thoughts, feelings associated with behavior
  - Other mgt same with anxiety

Trauma and stressor-related disorders

2 types

1. **PTSD** - > 1 mon
2. **ASD** (Acute stress disorders) - < 1 mon

Risk factor:

War
Accident
Rape
Violence
Natural disaster

S/Sx:

Detachment
Emotional numbness exaggerated startled response
Anxiety & anger outburst
Depression
Sleep disturbances (insomnia, nightmares, flashbacks- whenever we get bad experiences it gets frozen in the brain)
Hypervigilance

Mgt:

- Be non-judgmental
- Encouraged verbalization of feelings
- Assist pt in developing adaptive coping mech and in understanding association between feelings & traumatic event
- Therapy: CBT (cognitive behavioral therapy), Psychoanalytic
- Support group with help

Mood disorders

Bipolar Disorder – characterized by episodes of mania and depression with periods of normal mood and activity in between

- **Manic-depressive**
- **Cause:**

-Biologic - Norepinephrine – excitatory neurotrans
Serotonin
Intracellular Na+ - DOC – lithium

-Psychodynamic – massive denial; faulty family dynamics (chaotic)

- **Activity:** gardening, lawnmowing, finger painting, delivery linens, NO sewing
  - Non- competitive activity
  - requiring low concentration
- **Nrsg Considerations:**

Restless/hyperactive
Flight of ideas – refocusing
Irritable/manipulative/demanding: set limits – a matter of fact manner, just restate the fact/rules immediately after it has been violated
Delusion of grandeur
Unable to sleep – envi- non- stimulating, provide rest periods, assist with warm bath, soothing music
Offer: Diet: Inc Ca+ and Inc CHON – finger foods, cheese burger, drink: milkshake

Mania
Hypomania
~~NO MOOD~~
Mild depression
Major depression

Depression

- Affects feeling, thoughts and behaviors

- **Cause:**
  Biological: ↓ Norepinephrine
  ↓ Serotonin
  ↑ MAO – inhibitory neurotrans.
  DOC- MAOI
  Psychodynamic- general feeling and sense of worthlessness

Specifics of Depression:

- **WOF:** Suicidal ideation

1. **Major Depression** (2 wks) **Vs Dysthymia** (chronic last 2 yrs, Chronic feeling of dec. self-esteem, Poor concentration, Depressed mood)
2. **Involutional Melancholia**
   S/Sx:
   Guilt – excessive, inappropriate
   Psychomotor retardation
   Older adults
   Early morning awakening
   Significant wt loss/anorexia
   Anhedonia
   Depression worse in the morning
3. **Peripartum Depression**

- During preg or within 30 days postpartum depression- prone to psychosis
- RITA- Inc. Risk postpartum dep, irritable, tearful, anxious

4. **Seasonal Affective Disorder (SAD)**- lifetime
   Aka: winter/fall depression
   Occurs: during winter/rainy days
   Cause: absence of natural light
   Mgt: Phototherapy, spotlight, well lighted room

Assessment: at least 5 of the ff:

1. Sadness
2. Loss of interest
3. Worthlessness/hopelessness/low self-esteem
4. Psychomotor retardation/agitation
5. Somatic manifestation
6. Recurrent thought of death

Points to remember:

- A client with depression is preoccupied, has dec. energy, and often even simple decisions – mgt. make simple decisions for the pt "It's time for you to eat"
- A person's feeling of self-worth is generally determined by accomplishments- ensure physiological needs met; assist ADL's; Activity: Simple; Acknowledge simple accomplishments to inc self-worth "I've notice you take a bath today"
- As a client with major depression begins to feel better, the client may have enough energy to carry out suicide attempt – **WOF:** sudden inc. in energy upon taking meds/antidepressants

Neurocognitive Disorders

-affects consciousness, memory, orientation, attention, perception

-**TYPES:**

a. Delirium – ICU psychosis – manifestation of hallucination; usually elderly in ICU

b. Dementia – not reversible, generally intellectual deterioration

Criteria	Delirium	Dementia
Onset	Acute Cause: infection and trauma	Insidious, gradual
Course	Fluctuating during the day	Stable overtime
Duration	Short term, <1 month	Long term
Consciousness	Dec.	Clear
Alertness	Impaired, Abnormal	Normal
Attention	Dec	Normal
Orientation	Impaired	Impaired
Memory	Recent- impaired	Impaired-recent then remote
Mgt	Treat the cause	Maintain optimum level of functioning

Dementia of Alzheimer's type

- Degeneration and atrophy of brain cortex
- Dec. Acetylcholine – inhibitory
- Neurofibrillary tangles, neurotic plaques
- **Assessment: A4's**
  Amnesia/forgetfulness
  Aphasia/Speech impairment(expressive/receptive)
  Agnosia- inability to recognize object/person
  Apraxia – inability to execute learn purposeful movements
- **Stages**:
  a. **Mild**- forgetfulness is the hallmark
  b. **Moderate** – confusion, disorientation
     - 3As Apraxia, Agnosia, Aphasia
  c. **Severe** – Personality and emotional changes
     - Deterioration in all areas of function
- **Sundowning Phenomenon** – inc. disorientation during sundown, OK= lighting, close the curtain, soothing music/radio // NO- TV
- **Nrsg. Intervention:**
  - Pt wander – take hand & lead the pt back home
  - Lock the facility

- Pt wanders from facility – follow the pt & redirect @ safe distance, assess if pt can follow order if pt cannot then reinforcement is needed
- Wandering bracelet
- Check medical order

- ***add note_ Alzheimer- neurotic plaques***

Personality Disorders

- Rigid maladaptive, causing significant personal distress and impaired social functioning
- **Causes:**
  a. Genetic factors – hereditary predisposition
  b. Temperament factors – innate/inborn
  c. Biologic factors – ass. with depression
  d. Psychoanalytic factors – rejecting, hostile, neglectful type of environment

Personality- integration of the systems and habits that represent an individual

- Expressed through behavior
- Everyone is unique

Cluster A -odd/eccentric behavior

a. Paranoid – extreme mistrust & suspiciousness
b. Schizoid – withdrawn, cold, introvert
c. Schizotypal – similar to schizoid + delusions, perceptual distortions

Cluster B – emotional/dramatic

a. **Narcissistic**- self-loving, loves to be admired and praise; lack remorse (same antisocial); grandiosity
b. Histrionic – attention seeker; extrovert; manipulative
c. Borderline – "psychotic-neurotic" "all good and all bad"; splitting behavior, fears separation, impulsive, unstable relationship (hallmark)- shift one job to another or labile mood; suicidal ideation
d. Antisocial – violate rules and laws, lack the sense of guilt, PRIO- SAFETY – set limits

Cluster C- anxious/fearful

a. **Dependent** – clingy; lack of self-confidence; looking for dominant partner
b. **Obsessive-Compulsive** – perfectionist, rigid; order in expense of efficiency & flexibility
c. **Avoidant** – pre-occupied with being criticized

Principles of Nrsg Care:

Consistency – specially with anti-social disorder
Limit setting – help develop trust, firm & consistent, emotional support

Treatment Plan – role Playing/Group therapy

- Assertiveness training – for avoidant & aggressive
- Medications- Anti-depressants

Eating disorders

A. Anorexia Nervosa – self-employed starvation/perfection

Etiology-

1. Biologic – Inc. Serotonin
2. Developmental factors
3. Social factor- adolescence, over demanding parents

Personality Type: Achiever, perfectionist, female, adolescent

S/Sx:

Amenorrhea- within 3 consecutive months
No appetite
Obvious wt loss
Reducing ideation of perfection
Emaciated- extreme muscle loss-cachexia
Xerostomia- dry mouth
Image disturbance – Initial Dx
Abnormal har growth

Other Mx:

Restricting calorie intake
Intense fear of gaining wt
Decreased VS
Fluid & electrolyte imbalance

Criteria for hospitalization:

Failure to gain weight in an OPD setting
Loss of 30% of body weight within 6 months
Fluid and electrolyte imbalance
WOF: Hypokalemia- cardiac dysrhythmias
Dec V/S: temp < 36°C, BP systolic <70 mmHg, PR dec 40 bpm

Mgt:

Re-establish appropriate eating behavior- set limits with eating time: within 30 mins, sit with pt 1-2 hours after meal, pt wt- 2-3x/wk, wt goal: 3-5 lbs/wk

Bulimia Nervosa

- Binge eating followed by vomiting
- **Etiology**
  Biologic Dec Serotonin
  Psychodynamic- ambivalence with low self-esteem; chaotic & broken family
- **S/Sx:**
  Binge eating

Uses purging
Laxative and diuretic abuse
Induces vomiting
Metabolic alkalosis
I (extensive caries)
Chipmunk face and callus formation (swollen parotid)
Slightly below or above normal weight

- Other manifestations
  - Under strict dieting or vigorous exercise
  - Loss of tooth enamel/tooth decay
  - Esophageal Varices- bleeding/aspiration
- **Mgt:**
  - Set limits
  - Improve self-esteem

Schizophrenia

- Split mind (Bleuler)
- Disharmony between the pts thinking, feeling and actions
- **Theories of Causation**
  - Biologic – Inc Dopamine in most part of the brain
    - (+) Sx
    - Dec. Dopamine- (pre-frontal cortex) – CEO
    - (-) Sx secondary to meds
  - Psychologic theory- general vulnerability to stressors of life
  - Family theory – rejecting hostile neglectful family environment
- **General Mx: (DSM V) –** deterioration of personality

a. Delusion
b. Hallucination
c. Disorganized speech – ass. looseness
d. Catatonic behavior- disorganized mov't/action
e. Negative Sx

Positive Sx	Negative Sx
-bizarre, additional feature	Withdrawn, missing
Delusions	Alogia-poverty of speech
Hallucinations	Anhedonia – No pleasure
Disorganized speech	Avolition – NO motivation
Insomnia	Anergia- No energy
Grandiosity	Asocial – same autism
Illusion – inappropriate affect	Inattention- No attention
Catatonia	Flat affect

General Intervention:

1. Acceptance
2. Trust – firm & consistent
3. Present reality
4. Acknowledge feelings
5. Withdrawn pts- 1:1
6. Assist ADL's
7. Suspicious pts – develop trust, maintain eye contact
8. Disruptive – safety & set limits

*restraints –
- Renewal hours/order: every 4 hours
- Expiry of order – every 24 hours
- Check V/S: every 15 mins
- Remove: every 2 hours for 10-15 mins

Somatic symptoms and other related disorders

- Persistent worry or complaints about physical illness without supporting physical findings.

1. **Conversion DO –** physical Sx or deficit suggesting loss or altered body function
   - Usually voluntary movement (ex. Conversion blindness, possible limb paralysis, selective mutism)
   - Underlying cause: Trauma, overuse of denial
   - They do not seek immediate treatment – labile indifference
   - Not faking Sx; Do not ignore the client just the condition
   - Curable
   - **Goals of Treatment:**
     - Make client functional as his condition will allow to improve the quality of life
     - To relieve Sx: initially- assess the complaint; once admitted: ignore the condition but not the pt.
     - If the pt talks about the condition, listen shortly but learn to redirect the topic

2. **Factitious DO**
   - **Munchausen Syndrome**
     - Impose on self
     - Gain attention & emotional support
     - **F**ake Sx (medical/psychological)
     - **A**lter medical Hx, specimen, result
     - **C**laim that they are sick
     - **T**hey inflict pain or injury
     - Cause: unknown
     - Treatment: CBT, psychoanalysis; Be non-judgmental; Acceptance; Trust
   - **Munchausen Syndrome by proxy**
     - Impose on others
     - Malingering
     - external reward/incentive ex. Freedom fr liability

- needs legal intervention
- Caregiver is overly attentive/concern
- Hx of many hospitalization of the child
- Improvement of child's condition in the hospital but Sx recur when the child returns home
- Labs & other Dx results do not match to Sx
- Drugs/chemicals (child's urine & blood sample)
- Common victim- <6 yo
- Perpetrator: mother or primary health care giver "mother imposturing"

Substance related, and Addictive DO

Substance Use DO – a cluster of cognitive, behavioral, and physiological Sx indicating that the individual continues using the substance despite significant substance related problems

Criteria:

1. Impaired control over substance – takes substance in a larger amount
   - Reports multiple unsuccessful efforts to discontinue use
   - Craving
2. Social Impairment- problems with family, occupational and social relationships
3. Risky use of substance – hazard; continuous use of substance despite physical or psychological problems
4. Pharmacological Criteria – **withdrawal**- physiological response due to abrupt discontinuation of substance use that leads to physical or psychological readjustment; **tolerance** – need to increase the dose in order to get the same effect

Stimulant VS Depressant

Intoxication	Substance	Withdrawal
Inc/ upper	Stimulant	Decrease
Dec/Downer	Depressant	Upper

Alcoholism – chronic disease or disorder, excessive alcohol intake & interference in the individual's health, interpersonal relationship and economic functioning (WHO); depressants

- **Etiology**

  Psychodynamic – oral fixation

  Biologic – Dec Serotonin/hereditary

  Behavioral- exhibit dependence, mistrust, feelings of inferiority, more phobic

- **Detecting Alcoholism**

  a. Blood alcohol level (BAL)

BAL	S/Sx
Up to 0.05%	Loss of inhibition
Up to 0.1%	Anxiety relief, euphoria, loud speech
*0.1-0.15%	Legal intoxication, slurred speech, motor intoxication, moodiness
0.2-0.3%	Irritability, tremor, ataxia, may have memory lapse (blackout)
0.3% and up	Unconsciousness

  b. CAGE Questionnaire

C- have you ever felt the need to **CUT** down drinking/drug use?

A- Annoyed at criticism?

G-Guilty about something done?

E-Eye opener

Goals for Detox

- Remove inc. toxins in blood
- Dec. craving

S/Sx: antabuse –how long? – as long as alcohol detected

Inc. HR

Severe headache

Flushes/hot flushes

Tremors

Mgt.: do not drink alcohol 24°before the 1st dose, 2 wks post last dose

Avoid: flagyl/metronidazole- because it contains benzyl alcohol (preservative)

Mgt.:

a. **Short-term: DETOXIFICATION**
   - Mark the abrupt discontinuation of the subs; liver- natural detox
   - Approximately 7-10 days
   - **PRIO**- when was your last drink?

Stage	Timing	Withdrawal S/Sx
1	6-8 hrs after last drink	Tremors, sweating, agitation, GI Mx, (excitability)
2	8-12 hrs	Stage 1 + hallucination
3	2-3 days	Stage 2 + seizure
4	2-5 days (worst)	Delirium tremens extreme CNS irritability associated with alcohol withdrawal Mgt: seizure prec; anxiolytics-during detox; BP important – lead to stroke

b. **Long term: REHABILITATION** -45 days

1. Give up alcohol-abstinence; Disulfiram therapy or Aversion therapy

Goal: to make drinking painful; milieu therapy

2. Live a positive lifestyle
   Rehab goal: change of behavior thru Group therapy (alcoholic anonymous)
   Al-anon- wife
   Al-a-teen-for children

Commonly abuse substance

Substance	Physical Signs	Withdrawal effects
A.Stimulants Amphetamine (shabu) Cocaine-route inhale	Hyperactivity Euphoria Inc. vs Wt loss Loss of appetite Perforated nasal septum MI or respi arrest-hyperstimulation of heart and lung muscles	**D**epression **I**rritability **P**sychosis **P**sychomotor **S**eizure
B.Narcotics/opiates -downers -anticonvulsant -**Hero**in -**Mo**rphine -**Co**deine Other **down**ers Alcohol Barbiturates "Hero Mo Co but I let you down" Opiates Hydromorph**one** Oxycod**one** Methad**one**	Pinp**O**int pupils Incoordination Dec. V/S Drowsiness	**R**unny nose **I**mpotence **P**iloerection
C.Hallucinogen LSD (lysergic acid diethylamide) PCP-phencyclidine Mescaline(peyote) Psylocibin-mushroom	Dilated pupils-all stim. Hallucinations Inc. V/S	Visual disturbances or flashbacks Hallucinations
D.Cannabinoid Marijuana (stim.)	Weight gain Blood shot eyes	Lack of appetite Depressed mood Headache

Neurodevelopmental DO

ADHD:

- Attention deficit- PRIO
- **ADD**-adult
- Main problems
  - Inattention
  - Hyperactive
  - Impulsive
- More common in boys- onset until 12 yo
- Cause: Biochemical factors- dysregulation of norepinephrine & serotonin
  - Biological factors – frontal lobe disfunction (CEO- executive function of the brain)
- **Mx:**
  - Poor decision making & impulsive control
  - Fidgets with hands and feet or squirms in the seat
  - Easily distracted with external or internal stimuli
  - Difficulty in following instructions
  - Poor attention span
  - Shifting from one uncompleted activity to another
  - Talking excessively
  - Interrupting or intruding on others
  - Engaging in physically dangerous activities without considering the possible consequences
- **Mgt:**
  - Limit setting
  - Re-channeling off energy
  - Safety
  - Set limits
  - Schedule
  - Structure the envi.
- **Prio Nrsg Dx.: RFI** – impaired social instruction
- **DOC:**

  Methylphenidate (Ritalin) – prolongs the attention span, Inc hyperactivity; CNS stimulant; Side effects: dec. appetite & sleep; headache, N/V, ***growth retardation**; rapid, repetitive ticks,
  - Do not give during hours of sleep/night
  - Before meals for better absorption
  - If once a day before breakfast; 2x a day before breakfast & lunch; 6 hours before bedtime or around 4 pm

  Next DOC: Dexedrine & Strattera

Autism Spectrum DO

- Developmental disorder characterized by impairment in communication skills, or the presence of stereo-typed behavior, interest and activities, with associated **impairment in social isolation**
- More common in boys and occurs before 18 usually diagnosed at 2
- Cause: biological factor
- Main problem: Impaired interpersonal functioning

Mx:

1. Impaired social interaction – prefer to be alone
2. Impaired verbal communication – echolalia (acceptance)

3. May avoid eye contact but maintain eye contact to establish communication
4. Disturbance in personal identity- call by name to establish identity
5. Repetitive actions – learn about their routine
6. Resist change
7. Poor nutrition – be extra sensitive to their body language/needs
8. Temper tantrums – head banging (provide helmet)
9. NO real fear of danger _ PRIO-safety, structure, support, consistency
10. Apparent insensibility to pain

Mgt.:

1. Offer presence
2. NO touching (may not want cuddling)
3. Activity: less demanding
4. Inappropriate attachment to object – allow
5. Be consistent

Intellectual disability (Mental retardation)

- Sub-average intellectual capacity
- Develops before 18
- IQ: below 70
- Cause: Biological factors: inherited
- Main problem: Inadequate mental functioning

Levels of Intellectual Disability

Level	IQ	Feature	Mental age
Mild/moron	50/55-70	Educable	8-12 (school age)
Moderate/Imbecile	35/40-50-55	Trainable	3-8 (pre-school)
Severe/idiot	20/25-35/40	Needs close supervision	0-3 (toddler)
Profound	Below 20-25	Needs(complete) custodial care	0 (infant)

Domestic Abuse- report automatically if suspected

Child Abuse- maltreatment of child

Physical	Sexual	Emotional	Neglect
Lack of crying Unexplained injury @ different healing stages Bald spots Extreme aggressiveness or withdrawal Apprehensive child-reluctance in changing clothes for sports Fear of parents Frozen watchfulness	Difficulty walking or sitting Pain or swelling of genitals Unwillingness to change clothes Torn, stained or bloody underclothing WOF: any allegations made by the child with sexual concerns	Suicide attempt Learning difficulty Speech disorders-selective mutism Mood changes Anxiety Depression	Poor hygiene Inadequate wt gain Constant fatigue Inconsistent school attendance Consistent hunger Untreated illness

Priority: all types of abuse

1. Safety – remove the child
2. Report- to the appropriate agency
   Child/adult – child/adult protective service
   Spouse- local enforcement agency
3. Physiological needs met

Elderly Abuse- maltreatment to elders

Mx.:

a. Physical- inconsistent explanation to injuries possible contractures, presence ulcers
b. Neglect – poor hygiene
c. Emotional abuse – fear, agitation, confusion
d. Economic Exploitation- child's handles the pt account; sign unable to pay bills; no knowledge about own expenses/finances

Spousal Abuse (Battered wife syndrome)

- Cycle of domestic violence characterized by wife-beating by the husband, humiliation and other forms of aggression

- **BWS cycle**

1. Tension building- verbal argumentation vices, jealousy
2. Severe battery – physical contact
   Trigger – NONE
   DM: displacement; projection
3. Honeymoon – DM: undoing

Mx/Common Cues of Partner Abuse

1. Repeated vague Sx- freq. hospitalization
2. Unexplained injuries
3. Flinching in the presence of spouse
4. Suicidal thoughts
5. Continual efforts to keep partner from getting angry
6. Lack of relationship

Nrsg Interventions

1. Be non-judgmental
2. Ask directly if abuse is occurring
3. Acknowledge serious abuse- help gain insight
4. Assist victim to assess internal strength
5. Give victim list of resources *local crisis hotline
6. Don't push the victim to leave abuser if not ready
7. Help victim come up with safety plan/escape
   Sample: in one bag put all important documents including child's favorite toy

Prio:

1. Remove from immediate physical danger
2. Report to local engagement agency
3. Provide local crisis hotline

Rape

- Sexual act with penile penetration
- Without consent
- **Truths about rape:**
  1. Is an act of violence
  2. Act of domination and power
  3. There are more females raped than male
  4. There is more acquaintance rape done
- **Rape trauma syndrome**
  a. **Acute phase** – immediately post rape- last 4 wks; denial, silent, withdrawn; Sit with pt, secure consent to assess injury, Thera: silence
  b. **Outward adjustment**- pt begins to verbalize Mgt: encourage further verbalization
  c. **Resolution** – pt begins to accept – unacceptance= sexual dysfunction = frigidity = sexual promiscuity
  Mgt: refer to psychotherapy

Crisis

- Critical incident – experienced, witnessed, learned about = stress (coping OK; if unmanaged trauma) = crisis- affect whole community; less severe – uncontrolled crying, feelings of panic, crying-yelling; severe – threatens to harm self of other & become out of touch with reality – psychosis

Characteristics of crisis state

1. Highly individualized
2. Self-limiting- 4-6 wks, true crisis state
3. Also affects significant others
4. Person is amenable to suggestions

Role of the nurse – more direct & active approach
Primary objective – give guidance & support
Thera. Com: Focusing on the problem they can resolve

Steps in Crisis Intervention:

1. Assess the situation (resources)
2. Assess pt to develop cognitive awareness "where were you" "who are you with"
3. Assist the pt. in managing feelings- deep breathing
4. Explore with the client the resources available "who are your relative that we can call"
5. Assist the client with the action plan

Loss and grief- Normal reaction to real or anticipated loss
Duration: 12-24 months
Types:

1. Anticipatory- occurs before loss
2. Disenfranchised – loss is experienced but it cannot be acknowledged
3. Dysfunctional – prolonged emotional instability

Interventions:

- Allow adaptive denial (DABDA)
- Explore the clients perception & meaning of loss
- Encourage the client to examine the coping patterns in the past & present situations of loss
- Encourage pt to care for self

End of life

1. Ethical & legal concerns
   a. Living will/advanced directives- pt decides for his further treatment plan, Last will- properties
   b. Durable Power of attorney – pt assigns a health care proxy to decide for his treatment is case pt is incapable
2. Hospice Care – terminally ill; 6 months to live
   RN- pain mgt and supportive care- expertise
   *GOAL: to make the pt more comfortable
3. Post mortem care
   Maintain dignity
   Organ donor: Driver's license- if wife won't permit, honor wife's request cause everything expires if pt dies not unless there is a Living will
   Respect rituals
   Thera com: silence and touch
   Establish privacy
   Maintain respect

Suicide

- Anger turned inwards
- Ultimate for of self-destruction
- Cry for help
- Who are these?
  Depressed
  Hallucinating
  Borderline personality
  Client in crisis
  Psychotic clients
  Widowers/divorced
  Terminally ill; recent job loss

- **Nrsg. Interventions**
  1. Assess for clues of suicide
     - Valuables are given away
     - Living will change
     - Notes
     - Verbalization
  2. Conduct a lethality assessment
     a. Plan- ask directly – are you planning on killing yourself>
     b. Method- high-lethal= gunshot, jumping, poisoning; low lethal= med overdose, wrist slashing
  3. Keep the client safe
     - Remove sharp or harmful objects
     - Nurse pt ratio 1:1
     - Suicidal- no harm or no suicide contract – not legal to write notes
     - Check pt in varying time to avoid predictability or every 5-10 mins = low
     - Stay with the pt 24 hours round the clock = high

Telephone triage: Suicide

Express: genuine concern & a desire to work with the caller

Identify: name, address, and tell #

Acknowledge: how difficult & painful the loses must be

Assess: method

Ask: give immediate solution; ideas; if anyone is with the caller; ask the significant other to help the caller

Refer: walk in crisis

Refuse: give the tell # of the crisis center

Electroconvulsive Therapy

- If the pt does not respond to medications
- **Indications:**
  1. Severely depressed not responding to meds
  2. Acutely suicidal
  3. Catatonic, manic
- **Contraindications**
  - CVA
  - Brain tumor
  - Inc ICP
  - Spinal cord injury
  - Glaucoma
  - HTN, ischemia
  - CHF, angina
  - MI
  - Renal & Liver dse
  - Pregnant
  - Fracture
  - Active bleeding tendencies
  - Fever/infection

Pre	Post
Convulsive Oxygenate 100% NPO- 6-8 hrs V/S every & post 15 mins ECT- ONLY RN Urinate first to prevent seizure induce incontinence Labs- ECG, EEG, x-ray,CBC Secure complete PE Institute cardiopulmonary Clearance IV route/heplock for meds NO IVF Pre-meds Atropine SO4 – dec serotonin Anesthetic short acting barbiturates Brebital (methohexital) Succinylcholine (Anectine) – decseizure ep- NO paralysis	O2 100% Monitor- V/S esp RR Effects: confusion, transient, mem loss, disorientation (Prio-reorient) Headache

Psychopharmacology

SNS	PNS
-adrenergic -anticholinergic NO water/dry ↑ Heart contractility ↑ Cardiac output, blood sugar ↓ Constipation ↓ Urinary retention (oliguria) ↑ Pupillary dilation ↑ Bronchodilation ↓ NO tears/dry ↓ Dry mouth Brain Excitatory ✓ Norepinephrine ✓ Serotonin ✓ Dopamine ✓ Acetylcholinesterase ✓ Glutamine	-antiadrenergic -cholinergic (think of H2O) -Inc secretion ↓ Heart contractility ↓ Cardiac output, blood sugar ↑ Diarrhea ↑ Urinary incontinence (polyuria) ↓ Pupillary Constriction ↓ Bronchoconstriction ↑ Teary, lacrimation ↑ Salivation Inhibitory ✓ MAO ✓ acetylcholine ✓ GABA

Drugs for Schizophrenia

-anti-psychotics

Typical – dec. Positive Sx

- **H**aloperidol (Haldol) – Inc EPSe – S/E
- **C**hlorpromazine (Thorazine) – WOF hypotension
- **T**hioridazine (Mellaril) – orthostatic hypotension

Atypical – dec negative Sx

- **C**lozapine (Clozaril) – dec WBC- **WOF**
  - Agranulocytosis (fever, sore throat)
- **O**lanzapine (Zyprexa)
- **R**isperidone (Risperdal)
- **S**eroquel (Quetiapine)
- **A**ripiprazole (Ability)

Risperidone (Risperdal)

1-2-3 regimen (1 OD / 2 BID/ 3 TID)

Therapeutic range – 4-8 mg/day

Autism **DOC**

Insomnia

Suppress tardive dyskinesia

Irreversible

Tongue protrusion

Lip smacking (teeth grinding)

Side-effect	**Nrsg Intervention**
Anticholinergic Sx	
Dry mouth	Encourage frequent sips of H2O, good oral hygiene, chew sugarless gum
Blurred vision	Reassure pt of transient nature of blurred vision
Retinitis pigmentosa	Notify the dr; slow loss of vision lead to blindness
Urinary retention or hesitancy- kidney dys	I&O, notify dr
Constipation	High fiber, Inc OFI and exercise
Paralytic ileus- obstruction/paralysis small intestine	Notify dr.- surgery
Sedation	Client teaching regarding need to restrict driving or operation of machinery
Orthostatic hypotension	Instruct ct to rise slowly form a lying to a sitting position
Dermatologic Effects	
Photosensitivity	Instruct the ct to wear protective sunscreens, clothing and sunglasses, and to limit exposure time in the sun
Hormonal effects	
Dec. libido	Explain that this may be transient
Amenorrhea	Explain that this is reversible Instruct ct not to discontinue the use of birth control as ovulation is continuing and pregnancy is possible
Weight gain	Encourage proper diet and exercise

General S/E

1. Anticholinergic
2. EPSE- Extrapyramidal S/E

Types:

- Dyskinesia- difficulty controlling mov't
- Pseudoparkinsonism- cogwheel rigidity, bradykinesia
- Dsytonia – involuntary muscle spasm
  - Laryngeal pharyngeal constriction
  - Oculogyric crisis
  - Writer's cramp
  - Torticollis (wry neck)
- Akathesia- restless

A/E

NMS- Neurolyptic Malignant Syndrome

- Inc temp *** indication
- Dec LOC
- Muscle rigidity
- Tremors

Antidote- Dantrolene- muscle relaxant, dec fever

Anti-depression

"TCA" -tricyclic anti-depressants

"3 cute girls mahilig sa Tofu"

Pamelor (nortriptyline)

Elavil (amitriptyline)

Anafranil (Clomipramine)

Tofranil (Imipramine)

WOF- cardiac dysrhythmias

SSRI

"Pro taxil nagZOZOlo"

Prozac (Fluoxet**ine**)

Zoloft (Sertral**ine**)

Paxil (Paroxet**ine**)

WOF: sexual dysfunction

MAOI – drug interact with SSRI AVOID

Parnate (tranylcypromine)

Nardil (Phenelzine)

Marplan (Isocaboxacil)

Tyramine rich precursors so **AVOID tyramine rich foods:** processed aged, pickled, smoked, overripe fruits NO banana and avocado// OK cottage cheese or cream cheese

WOF: hypertensive crisis

Anti-depressants health teaching

- **NO** smoking, alcohol, drug to drug interactions
- 1 at a time
  - **1st SSRI**
  - **2nd TCA**
  - **3rd MAOI**
- Buproprion or novel (well butrin) – anti-depressants without category new; instead of SSRI
- Wait 2-4 wks before you introduce another antidepressant

Drugs for Mania

Level- 0.6-1.2 meq; weekly checking of blood level

Increase urinary output-polyuria

Toxic-coarse hand tremors (mild)

Hands -fine hand tremors (N S/E)

Inc OFI-2-3 L/day -expected polydipsia

Uu- Normal mild diarrhea – toxic-diarrhea

Maintain-regular Na intake – 3g/day

Lithium- NO antidote

Therapeutic serum level	Mild Toxicity (1.5-2)	Moderate Toxicity (2-3 meq/L)	Severe (>3meq/L)
Fine hand tremors Mild diarrhea Goiter Anorexia Edema Wt gain Polydipsia Polyuria	Diarrhea Vomiting Drowsiness Dizziness Coarse hard tremor Muscular weakness Dry mouth Lack of coordination	Ataxia Tinnitus Blurred vision Delirium Nystagmus	Seizure Organ failure Renal failure Coma Death

Tip

Cause: SNS ↑ Norepinephrine, Serotonin, Intracellular Na+

Tx Goal to ↓

Gen. S/E PNS

Anti-anxiety/Anxiolytics

- Major use to reduce anxiety, also induce sedation, inhibit convulsion
- Do not modify psychotic behavior
- S/E: drowsiness, mental confusion
- Next DOC: Carbamazepine

A. Benzodiazepine- > S/E

- Alprazolam (xanax)
- Diazepam (valium)
- Lorazepam (Ativan)
- Temazepam (Restoril)
- Chlordiazepoxide (librium)
- Flurazepam (Dalmane)
- Midazolam (Versed)

B. Nonbenzodiazepine < S/E

- Buspirone (BuSpar)
- Zolpidem (Ambien)

Medications to treat Alzheimer's Dse

-inhibits acetylcholinesterase

-Ex. Donepezil (Aricept)
Tacrine (Cognex) – toxic -liver

-S/E

"Do not pisil"

-active bleeding tendency
Toxic liver
Comfort
Room visits (polyuria, incontinence)
Impaired Sphincter control
N/V
Anorexia

Alcoholism - dec serotonin
Alzheimer – dec. acetylcholine
Anxiety – dec GABA
Depression – dec Norep/ser and Inc MAO
Manic – Inc. Norep/ ser/ intracellular Na+
Anorexia – Inc. serotonin
Bulimia nervosa – dec. serotonin

Pediatric Nursing

Developmental Levels

Infants: 0-18 months

Erickson – Trust vs Mistrust

Freud- Oral phase – oral gratification

Jean Piaget – sensory motor learning – hearing

Solitary play – they play with their body and senses

Toys: mobiles (visual), rattles, teething rings (teeth erupt 6 months), music boxes & squeeze toys, floating bath toys

Significant others – mother

Fear- Stranger anxiety – manifestation: crying

Accident/Injury: Aspiration, fall

Concept death: none

Hospitalization: Oral stimulation & sucking/BF

Surgery: pacifier

Toddler: 18 months – 3 yo

Erickson – Autonomy- if met with self-control; over-depressed easily **vs** Shame and Doubt – impulsive or too dependent or independent

Freud- Anal phase; elimination – toilet training starts 18 months- signs – baby is able to walk, talk and sit; 3 developmental task (1) there must be a control of sphincters as evidence by walking (2) cognitive understanding of what it means to void- empty the bladder (3) must have the desire

Jean Piaget – pre-operational

Parallel play – no interaction

Significant others – parents

Fear- separation-crying

Ego-centrism

Accident/Injury: (1) falling (2) poison (3) burns, thermal

Toys push and pull, talking toy cordless telephone, blocks, board book with large pictures; **Criteria:** (1) safe (2) purpose/goal- teach them to walk & talk

Concept death: reversible, temporarily

Hospitalization: security objects to dec anxiety

Behaviors to observe:

a. **Negativism** "no", **Mgt**. (1) Offer choices, types of foods; utensils places: clothing ; (2) Set limits by repetition & be firm
b. **Temper tantrums** – expression of their need **Mgt**: (1) ignore as long as safe (2) set limits (3) time-out – remove from the scene and discipline, face the wall, minimum of 3 mins. or as long as the age of the child 1yr=1min

Pre-school: 3 yrs – 6 yrs, "why"

Erickson – initiative vs guilt - exploration

Freud- phallic stage – some genital dev, Inc Libido, have sexuality awareness; 2 complexes = **Oedipal** -sOn to mother, Electra- daughter to father

Jean Piaget – pre-operational

Associative/cooperative play: loves to share and imitate adults into play

Toys: role playing games – play school, play house, doctor-nurse kit, hand puppets, paper dolls

Significant others – immediate family

Fear- Body mutilation, castration, pain hospitalization "white coat fear"

Accident/Injury: MVA

Concept death: temporary and reversible

Hospitalization: explain using puppets and dolls

School Age: 6-12 yo

Erickson – Industry (met: competent in doing activity, attempting to learn) vs Inferiority (inferiority complex- manifested by poor performances)

Freud- Latency – sudden dec energy = focus on learning/activities

Jean Piaget – concrete

Competitive play – base on competence, collective, cooperative, Achievement oriented

Toys: card games, scrabble (board games), skipping ropes, sport toys

Significant others – Teacher

Behaviors to observe: achievement oriented

Fear- doing wrong

Accident/Injury: MVA

Concept death: irreversible

Hospitalization: can appreciate simple charts & diagram

Adolescent: 12-20 yo

Erickson – Identity (emotional stability; good interpersonal relationship) vs Role Confusion (poor handling of emotion, poor interaction & short-term relationship, love is express thru sex)

Freud- genital; sudden inc. libido; sexual genital maturity – puberty – inc. hormones

Jean Piaget – formal

Fore play/courtship

Significant others – peers

Fear- body image disturbance

Accident/Injury: Sports accident, Substance abuse (drugs & alcohol), suicide, sexual abuse

Hospitalization: Provide privacy; let same gender assist; body diagrams; involve them in decision making

Rapid growth with companion; Body changes which corresponds to puberty, moody & unpredictable, attempts to make decisions for himself/herself; make long range plans for the future.

Developmental Milestone

Fine Motor Skills- Proximo-distal

Months

0 – Reflex grasp
3 – Hands held open with palmar grasp
6 – Palmar grasp starts to disappear
9 – Pincer grasp (fingers)
10 – Points at object
11 – Puts objects in a cup
12- Throws an object/2 blocks build

Years

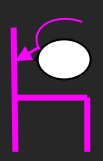
2 - 5 blocks
2 ½ - 7-8 blocks
3 – unbutton shirt
4 – buttons up
6 – tie shoe lace

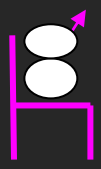
Gross Motor Skills – cephalocaudal development

Months

0 – head lag
2 – lift head
4 – full head control
5 – roll over
6 – sit with support
7 – foot to mouth
8 – sit without support
9 – crawl
10 – stand with support
11 – cruising
12 - stand without support
14-15 – walk

3 yrs – ride a tricycle


sit with support


sit without support

stand with support

stand without support

Smile

0 – may smile
1-2 months- coos, social smile
2-4 months – laughs, makes consonant sounds
6 months – imitative sounds
8-9 months – pronounces syllables (da-da)
12 months – says 4-5 words
2 years – first phrase, 300 words
2 ½ years knows first name
3 years – 3-4 words sentences, 900 words

Growth Principles

Physiologic loss of weight a couple of weeks after birth will be observed – 5-10% weight loss, length 1 yr – 50 % inc

Rapid stages: infancy & adolescents

Slow periods: toddler, preschool & school age

Reminders: birth weight
2x the weight: 6 months
3x the weight: 12 months
4x the weight: 24 months

Nutrition Principles

0-6 – exclusive breast feeding
4 months – dec. iron stores
Post 6 months – supplementary feeding

1. Cereals
2. Fruits
3. Vegetables
4. Meats

12 months – 1. Yolk – more nutritious
2. White – contains most allergens

12-13 months infants start to drink cup
To wean off from bottle
Prevent dental carries
1 month – 1 tooth

Introduce food 1 at a time:
Interval 5-7 days to monitor for tolerance and allergy
Offer food – serving size – 1-2 tsp only

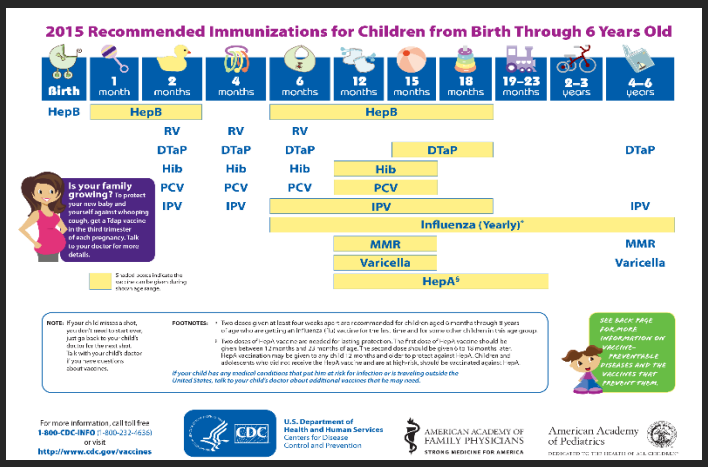
Feeding Problem:

Infancy – aspiration
Toddler – physiologic anorexia
Preschool – picky eaters; food pads
School – 0 cal intake (junk foods)
Adolescence – anorexia nervosa (disorder)

Notes on immunization:

General Contraindication & Precaution

Anaphylactic Reaction
Live vaccine – immunocompromised, pregnant, allergy to eggs & gelatin (derives from eggs) which serves as nutrition/food for bacteria
Moderate to severe illness



Killed/Inactivated Vaccines **The vaccines below are usually okay** to have while on immunosuppressive medications.	Live Vaccines **Avoid the vaccines in the list immediately below** while on immunosuppressive medications.
Influenza injection (Flu shot)	Chickenpox (Varicella vaccine)
Pneumonia Vaccine (Pneumococcal polysaccharide)	Influenza inhaled (Intranasal Mist)
Tetanus toxoid	Measles
Pertussis (whooping cough)	Mumps
Poliomyelitis (Injectable)	Polio (Oral vaccine)
Diphtheria toxoid	Rotavirus (Oral and Injectable)
Hepatitis A	Rubella (German Measles)
Hepatitis B	Shingles (Herpes Zoster vaccine)
Typhoid Injectable	Smallpox
Meningitis (ACWY)	Typhoid (Oral vaccine
Japanese encephalitis & Tick-borne encephalitis	Yellow fever
Rabies	
*TB skin screening test is not a vaccine, but it should be noted here that it IS acceptable to have this test performed.	

General S/E /Inflammatory Reaction

Swelling
Tenderness
Erythema
Fever

1. **Hepa B vaccine** – if mother HbSAg + carrier/infected you have to clean to administer the vaccine + Hep B Ig to the baby within 12 hours after birth
   - test mom for HbSAg – HbSAg (?) – hep B Ig ASAP
   - low birth weight – if baby is <2 kg hold the vaccine
2. **Rotavirus** – cause AGE – severe DHN leads to death
   - Oral route
   - Withhold: n/v or diarrhea
3. **DtaP** – Diphtheria, Tetanus, acellular (without nucleus of the cell in the vaccine) Pertussis
   - **Route**: IM
   - **Comp**: encephalopathy, seizure & high-grade fever
4. **Hib**: Haemophilus Influenzae B --CO2-- Pneumonia & epiglottitis (cause respi depression)
   - **Route**: IM
5. **PCV**: Pneumococcal Conjugate Vaccine
   - **Route**: IM
   - **Prevents**: pneumonia; meningitis (2° to pneumonia)
6. **IPV** – Inactivated Polio Vaccine
   - **Route**: IM/SubQ
   - **CI**: allergy to streptomycin, neomycin, gentamycin, formalin(preserve)
7. **MMR** – Measles (Rubeola), Mumps, Rubella (German measles)
   - **Route**: SubQ
   - **Avoids**: allergy to eggs and gelatin
   - If the child receives Ig – HOLD MMR for 3-6 months
8. **Varicella** – Prevents chicken pox & herpes zoster
   - **Route**: SubQ
   - **Avoid** – aspirin – leads to Reye's syndrome – swelling of the brain and liver tissue; even common flu still leads to Reye's syndrome

Reflexes – disappearing age – any delays cause neurologic disorders

S – 3-4 months
T– 3-4 months
S– 4 months
PM – 6 months
Ba – 12 months

Reye's Syndrome_viral/think about liver failure_so inc. ammonia, inc ICP; avoid aspirin, chicken pox

1. **Sucking/rooting reflex** – dis 3-4 months
2. **Tonic-neck/fencing reflex** – dis 3-4 months
3. **Palmar grasp** - 6 months
4. **Startle reflex-** 4 months, flexion of extremities (protective mechanism)
5. **Moro reflex** – 6 months, tilt head down @ least 30°- extension of upper extremities
6. **Babinski reflex-** 12 months, normal fanning of toes once examiner stokes (J) the sole of the foot, Abnormal- for adult fanning, normally it should coil

Birthmarks

1. **Telangiectatic nevi (stork bite)** - like rashes; Pale pink or red, flat, dilated capillaries on eyelids, nose, lower occipital bone and nape of the neck; blanch easily; more noticeable during crying periods; disappear by age 2 yrs

2. **Nevus flammeus (port wine stain)** – capillary angioma directly below epidermis; non-elevated, sharply demarcated, red to purple, dense areas of capillaries, commonly appear on face, no fading with time, may require future surgery, laser therapy is indicated
3. **Nevus vasculosus (strawberry mark)** – capillary hemangioma, raised, clearly delineated, dark red, with rough surface, common in the head region, disappears by 7-9 years

4. **Mongolian spots** – bluish black pigmentation on lumbar dorsal area and buttocks, gradually face during the first and 2nd year of life, common in Asian and dark-skinned individuals

The Risk Neonates

1. **Premature** < 37 weeks

- **S/Sx:** respi. Distress syndrome
  - Nasal flaring
  - Fast breathing
  - Chest indrawing/grunting
  - Chest retractions

  Complication is atelectasis cause dec. surfactant
- **Mgt:**
  - ET
  - O2 via Continuous Positive Air Pressure (CPAP) – promote gas exchange
  - Regulate body temperature – incubator
    WOF: hypothermia leads to anaerobic metabolic ---lactic acid – fetal distress
  - Maintain nutrition – gavage feeding-orogastric tube (route), nasal breathing

2. **Postmature** > 40-42 weeks

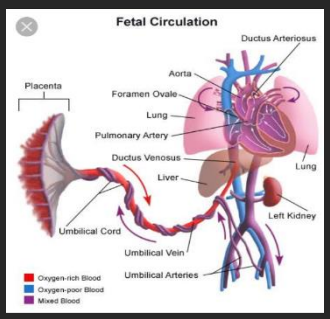
S/Sx – signs of growth – long but thin (glycolysis-**muscle wasting**)

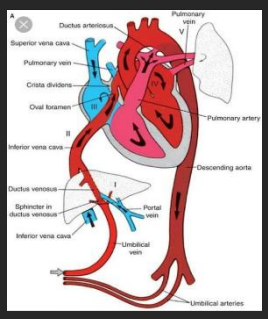
Placenta is not viable at this period so related problems are **malnutrition and fetal distress**

Signs of malnutrition – dry cracking skin & DHN, no vernix & lanugo, long hair and nails, Alert look

Assessment Problem

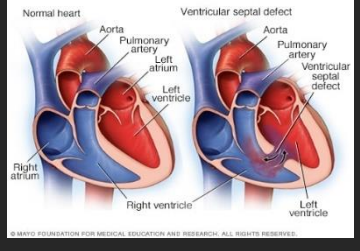
1. **Hypoxia** – dec placental viability and dec. blood flow, meconium
2. **Hypoglycemia – Mgt:** BF, D5 containing IVF, glucose water- use feeding cup
3. **Fetal Distress**
4. **Meconium Aspiration** – suction
   No suctioning if NSVD
5. **Meconium Staining** – bathing is required, oil bath; Infection- IV antibiotics (gentamycin)





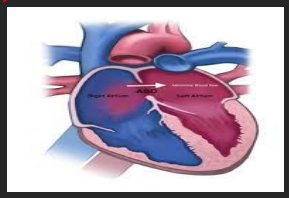
Pediatric Disorders
Cardiovascular d/o
Congenital heart diseases

1. **Acyanotic heart Defect** – direction of the defect is **Left to Right** (no cyanosis) – increase blood flow to the right side so there is a right ventricular hypertrophy & increase heart beat leading to pulmonary hypertension then pulmonary congestion (CHF)

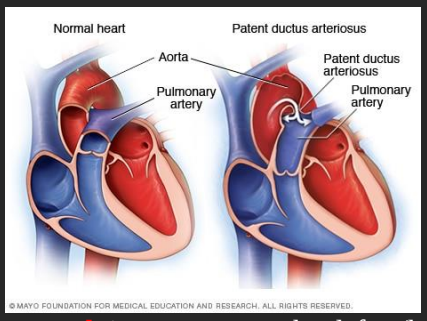


a. VSD (Ventricular Septal Defect) – there is an opening in the right ventricle so increase blood flow to the RV

b. ASD (Atrial Septal Defect) – foramen of ovale (normally closes 1 month after birth) still open which increases the blood flow to the RA



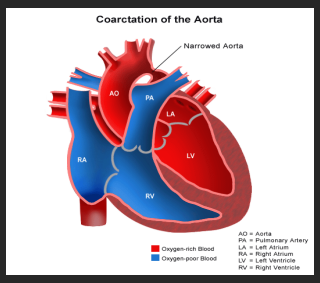
So, for **VSD & ASD** –



Dacron patch is use to cover the defect/hole

c. PDA (Patent Ductus Arteriosus) – Normally closes @ 1 month of age/24 hours here it is still open so increase blood flow to the RA; connect pulmonary artery (pulmonary congestion) & aorta

d. COA (Coarctation of Aorta) – narrowing, which causes pulmonary congestion, increases BP (upper extremities) and extremities)



Diagnostic and Management for Acyanotic Heart Defects

***Chest Radiography**

***Echocardiography** – 2D echo, somehow sound waves or UTZ of the heart

- detect/measure pressure within chambers & measure the ejection fractions (% of amount of blood pump out within each chamber)

***Cardiac Catherization** (Dx & therapeutic (immediate intervention)) - peripherally inserted

***Corrective Surgery**

= **Open heart surgery** – **induction of asystole** to prevent further injury; **induction of hypothermia** leads to dec. metabolic rate then dec. heart rate then

dec. cardiac O2 demand or general O2 demand; **use of bypass machine** – heart lung machine
= **Close heart surgery** – **Indomethacin (NSAIDS)** – dec release of prostaglandin leading to PDA closes
Balloon tamponade – use cardiac catheter resolve coarctation of aorta; sometimes stent dissolves 3 months

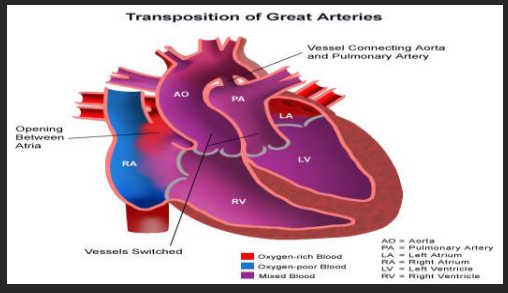
Medical & Nursing Mgt:

Goal: Prevent Congestion

1. **Drugs**
   a. **Digoxin (Digitalis), Lanoxin**
      - **WOF: hypokalemia (inotropic)** leads to inc sensitivity, so inc. PABOWS
      - **WOF: bradycardia (chronotropic)**
        < 1 yo - HOLD < 100 bpm
        1-5 yo – HOLD < 80 bpm
        6-10 yo – HOLD < 70 bpm
        >11 yo – HOLD < 60 bpm
      - **WOF: toxicity**
        Visual disturbances
        Anorexia
        N/V
        Diarrhea
        Abdominal cramps
   b. **Diuretics**
   c. **ACE- inhibitors** – dec. peripheral resistance
2. **Diet- dec. Na+**
3. **Dec. Cardiac O2 demand**
   a. Cluster care – plan activity nursing care
   b. Promote rest and sleep (PRIO)
   c. Emotional, social, mental rest
   d. Quiet play is encouraged, ex. Drawing

Cyanotic- Right to Left shunting

1. **Transposition of the great vessels** – displacement of Aorta & Pulmonary artery; no communication between systemic and pulmonary circulation that's why there is a cyanosis
   S/Sx: persistent cyanosis despite vigorous crying, Hypoxia despite of O2 therapy
   Mgt: prostaglandin E1 (inc prostaglandin to keep PDA open allowing the mixture of UnO2 and O2 blood); corrective heart surgery; arterial switch

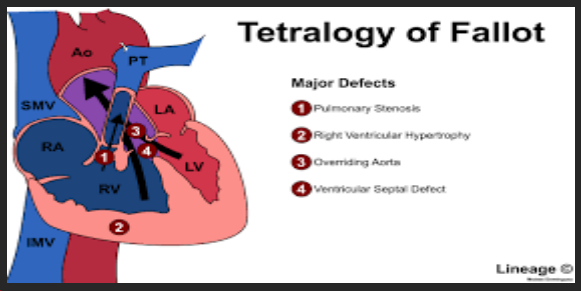


Before surgery Rule of 10
10 lbs & 10 weeks

If it starts with "T" it is trouble

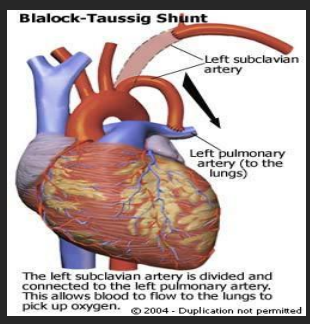
2. **Tetralogy of fallot**
   Ventricular Septal defect
   Pulmonic stenosis
   Overiding of Aorta
   Right ventricular hypertrophy

Varied Pics Of the Ranch



S/Sx:
*exertional dyspnea
*tet spells – cyanosis during feeding/crying
*clubbing of fingers – chronic hypoxia
*polycythemia (inc RBC) – compensatory mechanism, some irregular shape
*stranded physical growth delayed development

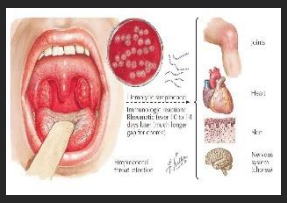
Mgt:
*dec. O2 demand
*Propanolol – dec. tet spells, cause vasodilation promote perfusion
*Monitor- Hgb & Inc Hct count
- polycythemia- inc RBC so concentrated blood then Inc Hct
a. intervention of tet spells that confines circulation on the vital organs
- squatting (older children)
- knee-chest position (babies/infants)
b. O2 supplementation
c. Morphine – dec catecholamines leads to vasodilation and then dec. anxiety
*Monitor activity intolerance



Surgery:
Palliative – Blalock- Taussig – subclavian artery connected to pulmonary artery promoting blood flow to the lungs
Complete: Brock procedure - repair of pulmonary stenosis

Acquired Heart Disease

1. **Rheumatic Heart Fever** – an autoimmune dse that affects Connective tissues
   - It manifest 2-6 weeks after untreated GABHS infection of URT
   - **Dx jones criteria**



Major Criteria:

Carditis
Arthralgia
Chorea
Erythema marginatum – redness by lines
Subcutaneous nodules

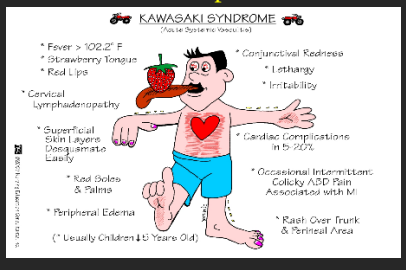
Minor Criteria

Fever
Arthralgia
Elevated erythrocyte sedimentation rate or positive C-reactive protein level- rel to inflammation (might be generalized)
Prolonged R-R interval on electrocardiogram

Note: for making a dx, 2 majors or 1 major and 2 minor manifestations must be accompanied by supporting evidence of a preceding streptococcal infection (positive throat culture for group A streptococcus and an elevated or increasing *antistreptolysin o titer)*

- **Mgt**: control joint pain and inflammation
  - Bed rest
  - Antibiotics
  - Salicylates/ASA/aspirin **WOF**: A/E tinnitus
  - Seizure precaution
  - Antibiotic prophylaxis for dental work & invasive problem

2. **Kawasaki Disease**
   - An acute systemic inflammatory disease
   - Self-limiting for 4-8 weeks
   - Cause: unknown/autoimmune
   - Most serious complication is Heart involvement



   - Pathognomonic sign: Strawberry tongue
   - **S/Sx:**

a. Acute stage

Fever
Conjunctival hyperemia- sore eyes
Swollen hands, rash and lymph nodes enlargement

b. Subacute stage

Joint pain
Thrombolytics – inc platelet
Cracking lips
Desquamation of skin on the tips of fingers and toes
Cardiac manifestations – tachyarrhythmia

c. Convalescent stage – child appears normal but signs of inflammatory may be present

- **Intervention:**

Assess: heart sounds
Examine the eyes for conjunctivitis
Monitor I&O
Diet: soft foods & liquids (dysphagia)
Passive range of motion exercises
Meds: Ig (IV), ASA *(Monitor for Reye's Syn)

Kawasaki Dse

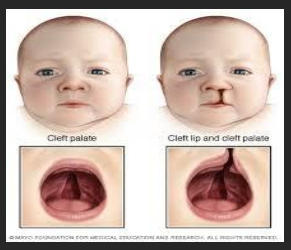
"do not try to buy a Kawasaki you might CRASH and burn"

- ✓ **C**onjunctivitis
- ✓ **R**ashes
- ✓ **A**denopathy
- ✓ **S**trawberry tongue
- ✓ **H**and desquamation and feet
- ✓ **F**ever (burn)

Gastrointestinal Problems

1. **Cleft lip**
   - **Cause**: multifunctional
   - **Common**: males
   - **Surgery**: Cheiloplasty
     - Consider age – 3-6 months- to preserve the sucking reflex
     - Surgical readiness: 10 weeks and 10 lbs
     - Surgical care: position post op: Supine
     - **Protect** – Logan bar/bow (splint suture)
     - Future problem: speech defect and dec. social acceptance

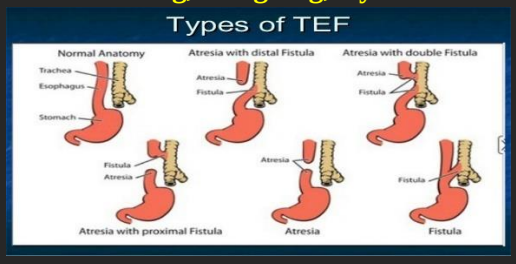
2. Cleft Palate



- **Cause**: hypervitaminosis A (maternal)
- **Common**: females
- **Surgery**: Uranoplasty/palatoplasty
- **Age**: within 6-24 months- develop of speech organs, < 6 months – possible resurgery, > 24 months – irreversible
- **Surgical care**- prone/semi prone- drainage, ensures airway clearance
- **Observe**: frequent swallowing (continuous/active bleeding); airway problem – **REFER**!!! Immediately
- **Protect**: elbow restraint
- **Feeding** – sippy cup used
- **Future problem** – speech defect & dec. social acceptance

3. Tracheoesophageal Fistula

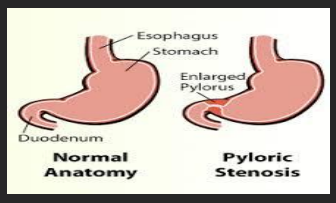
- **S/Sx: Choking, Coughing, Cyanosis**



- **Surgery:** thoracotomy with diversion & dilation of TEF

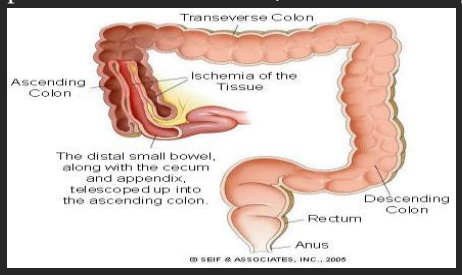
4. Pyloric stenosis

- **S/Sx:** abdominal distension
  - Projectile vomiting (forceful abdominal contraction)
  - Metabolic alkalosis & Hypokalemia
- **Dx: String sign- olive shape mass** (pathognomonic sign)
- **Surgery:** fredet-ramstedt procedure (pyloromyotomy with pyloroplasty)
- **Nrsg Consideration:** Pre-pro- NPO, IVF; Post-pro. Monitor I&O; small frequent feeding, feed infant slowly, burping frequently



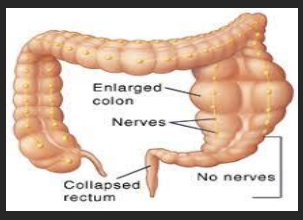
5. Intussusception

- Telescoping of the intestine
- **Cause:** weak ileocecal valve
- **S/Sx:** spasmodic abdominal pain
  - Blood with mucus (currant jelly stool-self-digestion)
  - Bile stained vomitus (greenish)
  - Sausage shape mass
- **Dx:** barium enema
- **Mgt:** Barium hydrostatic reduction technique – push the intestine back, it can recur so just monitor



6. Hirschsprung's Disease (AKA Aganglionic megacolon)

- Absence of ganglion cells (nerves that control peristalsis) in the large intestine, so if no ganglion cells then dec. peristalsis and there will be accumulation of stool on the affected segment (megacolon) so there will be constipation



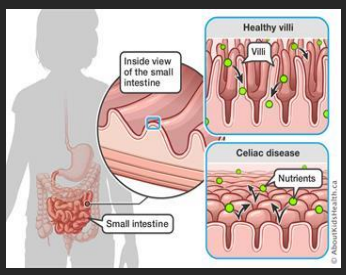
- **S/Sx:** initial- absence of meconium (problem 24°post birth)
  - Constipation
  - Ribbon like stool- semi-liquid stool
  - Pellet like stool
  - Abdominal distension with possible fecaloid vomitus
  - Weight loss
- **Dx Procedure:** rectal biopsy- if no ganglion cell (+)
  - Barium enema – outline/contrast the large intestine
- **Surgery**- endorectal pull-through procedure
  - Permanent colostomy
- **Nrsg Intervention:** Bowel irrigation, laxatives, enema
- **Diet:** Inc. CHON, Inc. CHO & dec Fiber (inc the bulk of the stool)

7. Imperforated Anus

- **S/Sx:** initial sign: no meconium
- **Cause:** embryonic abnormality
- **Surgery:** anoplasty – ok to perform at birth, post procedure temporary colostomy, take down after 10 months, before 18 months toilet training is still applicable

8. Celiac disease (Celiac Sprue)

- Intolerance to gluten



- **Assessment**
  - Steatorrhea
  - Anorexia
  - Abdominal pain
  - Vomiting
  - Anemia
  - Muscle wasting
- **Celiac crisis**- (Precipitating factors) an inc intake of gluten
- **S/Sx:** severe vomiting, watery diarrhea leads to severe DHN
- **Interventions:**
  - gluten free diet
  - minerals & vitamins supplements
  - instruct parents to prevent celiac crisis
  - Instruct parents about Celiac Sprue Association
  - **Foods Allowed**: meat such as beef, pork, poultry, and fish, eggs, milk and dairy products, vegetables, fruits, rice, corn, gluten free flour, puffed rice, cornflakes, pre-cooked gluten free cereals
  - **Foods Prohibited**: commercially prepared ice cream, malted milk, prepared puddings and grains, including anything made from **Barley, Rye, Oats, Wheat**, breads, rolls, cookies, cakes, crackers, cereal, spaghetti, macaroni noodles, beer, and ale

9. Phenylketonuria

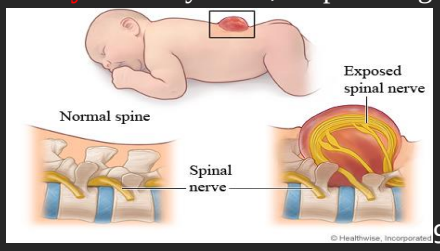
- Phenylalanine – excess leads to mental retardation
- Phenylalanine – converted to **tyrosine** by phenylalanine transferase enzyme– which is the building block of neurotransmitters (S/Sx seizure and mental retardation), aids in digestion (malnutrition and malabsorption), precursor for melanin (albinism)
- Phenylalanine – converted to phenylacetic acid – urine causing green stain phenylketonuria
- Absence of the enzyme
- **Dx Procedure**: Guthrie test – blood/urine test
- **Intervention**: **Diet** – lifelong diet modification, pt must **avoid** animal sources alternative tofu, soy, protein of high biologic value (vegetables), **avoid** milk, cheese, ice cream, nuts and beans
- **Ok formula milk**- lofenalac, milk without phenylalanine

Neurologic disorders

Neural tube defects

1. Spina bifida

- **Causes –** maternal malnutrition, drug intake, maternal **Folic acid deficiency** leads to embryonic abnormality then non-closure of the neural tube (normally closes 3-5 months with folic acid)
- **Classification:**
  - **a. SB Occulta –** hidden/not obvious/no outpouching; with thin hairlike substance above the lesion, asymptomatic, no treatment
  - **b. SB Cystica –** cyst like; outpouching



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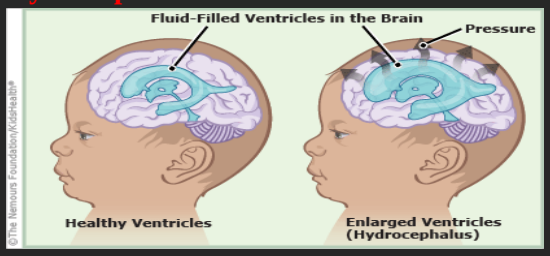
- **Meningocele –** CSF only
- **Myelomeningocele –** CSF & spinal cord

- **General S/Sx –**
  - Flaccid paralysis – L1 & L5
  - Altered elimination pattern – neurogenic bladder (bladder atony) – S1- S5, or constipation, fecal incontinence
  - Head & neck rigidity (meningitis like Sx)
- **Surgery –** closure of neural tube defect; suture muscle and fascia
- **Mgt:** prevent – infection, pressure & injury
- **Intervention:**
  - **Position**: Prone
  - **Feeding**: hold the baby in the upper back and buttocks
  - **Cover**: sterile gauze moist with NSS to avoid drying/cracking
  - **Bowel Function**: laxatives
  - **Monitor infection**: meningitis
  - Provide adequate nutrition
  - Monitor signs of inc **ICP**

2. **Hydrocephalus:**



- **Causes:** tumor (Non-com), hemorrhage (communicating), infection & trauma (both)
- **Types:**
  - Communicating – inc in volume of CSF/problem in the drainage
  - Non-communicating – obstruction in the flow of CSF
- **S/Sx:**
  - S/Sx of inc ICP
  - Sunset eyes
  - Frontal bossing
  - Dilated scalp veins (attempting to drain CSF)
  - Inc head circumference (N 33-35 cm)
  - **Macewen's sign** – crack pot sound
  - **Initial Sign of inc ICP**
    - **R**estlessness
    - **A**pprehension
    - **T**achycardia
  - **Shunt prob**:
    - **Infant**- high pitch/shrill cry
    - **Toddler** – loss of appetite & headache
    - **Older children** – altered LOC
- **Nrsg care**
  - side lying position
  - measure the head circumference to monitor progress
  - prevent up in ICP – infants- dec stimulation, limit suctioning, avoid Valsalva maneuver
- **Surgery:** ventriculoperitoneal shunt – semi-permeable
  - **Pre-op** – monitor I&O
    - Small frequent feeding
    - Reposition head frequently
  - **Post-op**- position – **flat on bed** to avoid abrupt drainage (cause inc ICP- headache) for at least 24 hours
    - Monitor for shunt malfunction synonymous to inc ICP/ further inc head circumference

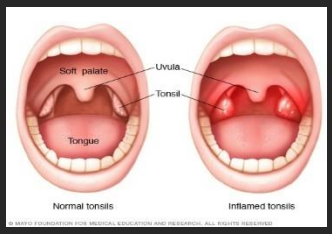
3. **Cerebral Palsy**

- Abnormality in the pyramidal tract – site of decussation, coordinates movement & sensation
- Impaired movement and posture
- Mental retardation
- Assessment
  - Feeding difficulties
  - Abnormal motor performance
  - Stiff rigid arms & legs (atrophy & contractures)
  - Delayed dev. Milestones
  - Persistent infantile reflexes
  - Abnormal posturing
  - Seizures
- **Nrsg Interventions**:
  - Goal: early detection & prompt treatment (neuron)
  - Rehab
  - Assess the child's dev level
  - Mobilizing devices (wheelchair & wheel go cart)
  - Encourage communication & interaction
  - Provide safety- inc risk for fall, raise side rails all the time & ensure companion at all times
  - Inc risk for pressure ulcer – turn them every 2 hours & change diapers regularly

Respiratory Disorders

1. **Tonsillitis**

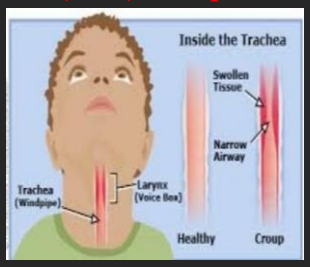
- Lead to Rheumatic heart fever
- Part of the immune system; highly vascularize; has lymphatic vessels that directly drains into the heart
- **Cause:** GABHS/ streptococcal infection
- **S/Sx:** Inc/high grade fever – body malaise
  - Cough
  - Sore throat
  - Dysphagia
  - Unpleasant mouth odor (pus)



- **Grading**
  - **(+) 1 / N** – tonsil is located laterally & not red/swelling
  - **(+) 2** – tonsil reached the midline
  - **(+) 3** – tonsils attached/closed to uvula
  - **(+) 4/kissing tonsil** – both are very much swollen/reach each other, needs intubation
- **Mgt:** Antibiotics – clindamycin, co-amoxiclav
  - Antipyretics

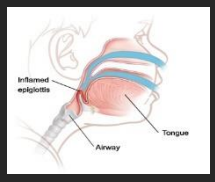
- Surgery – tonsillectomy – if recurring within 6 months
- **Pre-op** – check dental and bleeding status
- **Post-op** – position – side lying (semi-prone) to facilitate drainage
  - Observe for bleeding – frequent swallowing **REFER!!!**
  - Prevent bleeding – cold application – ice cooler or ice chips
  - **Avoid**: red colored juice, citrus, milk, dark colored food, hot & warm, popcorn, chips, nuts; pointed objects
  - **Diet**: food at room temperature, clear & non-irritating fluids
    Ex. Water, apple juice, popsicle

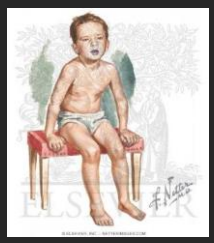
2. **Laryngotracheobronchitis (LTB)/Croup**



- **Cause**: parainfluenza virus (flu like)
- **S/Sx**: hoarseness of voice
  - Brassy, spasmodic, seal-like cough – attack
  - Inspiratory stridor – noisy breathing upon inhalation
  - Fever
- **Mgt**: Supportive care
  - Prevent coughing
  - Feed & hydrate with aspiration precaution
  - Dec O2 demand
  - During attack – mist therapy (croup tent/care)
    - Cold air- relaxes the airway (fog) – cause vasoconstriction

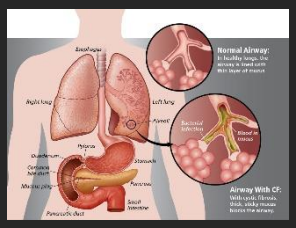
3. **Epiglottitis**





- **Cause** – haemophilus influenza
- **Common** – 2-5 yo
- **S/Sx**: Dysphagia
  - Drooling
  - Dyspnea – tripod positioning (sitting, leaning forward, arms at side supporting the upper body, open mouth and tongue out)
  - Life threatening – examining throat with a tongue depressor
- **Mgt**: emergency tracheostomy
  - Antibiotics – Ceftriaxone (rocephin)
  - Corticosteroids PRN
  - O2
  - Obtaining nasopharyngeal culture
  - Semi-fowler
  - Maintain inc humidity

4. **Cystic fibrosis/Mucoviscidosis** – thick mucus condition



- Systemic
- **Cause** – exocrine gland dysfunction secondary autosomal recessive trait (mother & father – son (dse) & daughter (carrier)) – thick secretions leading to obstructions
  - **Bronchi** – pneumonia then emphysema- complication is respiratory depression - death
  - **Small intestine** – malnutrition leads to dec ADEK absorption (fat soluble) then N/V
  - **Liver** – biliary cirrhosis (accumulation of bile in hepatic duct lead to cell death in the liver)
  - **Pancreas**- pancreatic achylia – malabsorption of enzyme (amylase, lipase)
  - **Male reproductive** – dec. semen lead to infertility
- **Dx**: Quantitative sweat chloride test – sweat is collected, Normal - <40 meq/L; 40-60 (borderline) repeat test on a different site; (+) > 60 meq/L
  - **Mgt**: chest physiotherapy & postural drainage (WOF- hemoptysis (complication))
  - Bronchodilators
  - O2
  - Flutter mucus device – ask the patient to inhale (if you inhale a vibrated air leads to removal of secretions- like a whistle)
  - Pancreatin – mix with food (bitter)
  - Creon – given to remove the blockage NGT tube; before/after meals
  - **Diet**: Inc CHO, CHON & Fat

Hematologic disorders

1. **Hemophilia** – x-linked recessive disorder; increase risk for bleeding
   a. **Type A** – clotting factor VIII is lacking
   b. **Type B** – clotting factor IX is missing

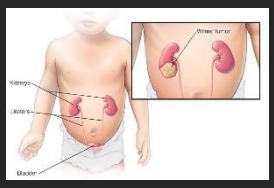
- **S/Sx** – prolong bleeding

- Skin petechiae (bleeding capillaries)
- Hematoma
- Hemarthrosis (blood in joint spaces)
- Epistaxis

- **Mgt: prevent** – trauma – avoid contact sports (swimming), wear protective devices such as helmet and knee caps
  - **Transfusion** – cryoprecipitate (concentrate forms of clotting factors)
  - **Prices technique** – if there is injury
    - **P**rotection
    - **R**est (affected extremity)
    - **I**ce
    - **C**ompress
    - **E**levate
    - **S**upport/splint

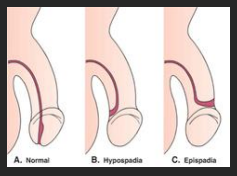
Kidney disorders

1. **Wilm's Tumor/Nephroblastoma** – tumor growing in renal tissue



- **Kidney blastoma** – metastatic
- **Cause: Unknown**
- **Peak incidence** – 3-5 yo
- **Chief complaint**- abdominal distention
- **Mgt**- Nephrectomy followed by chemo
  - **Pre-op** – no prone (avoid rupture & hemorrhage), no tight waist band, no palpation
  - **Post-op** – monitor vs hemorrhage, infection and I and O(specific)
  - **WOF** – temp – because tumor can lead to **Malignant hypertension**

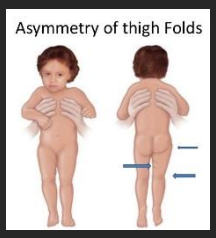
2. **Hypospadias (below ventral) & Epispadias (above the shaft /dorsal)**



- Abnormal location of urethra
- Hypospadias – surgery – Matthew technique
- Epispadias – Cantwell technique
- **Stent use** – without anchor to allow urethra to heal
- **Mgt post op**
  - Monitor V/S
  - Monitor I & O
  - If no urine output 1hour post-op – REFER
  - **WOF**- Cloudy urine – infection
  - No tab bath until stent is removed
  - No circumcision – needed for future surgery

Musculoskeletal Disorders

1. **Developmental Dysplasia of the Hip** – common cause breech presentation



- **Assessment** – neonate – laxity of ligament around the hip
  - **Infant**
    - **(+) Alli's sign** – shortening of affected limb
    - **(+) Ortolani's test** – upon abduction of the hip – clicking sound femoral head moves in the acetabulum
    - **(+) Barlow's sign** – upon adduction of the hip there will be a clicking sound; femoral head goes out of the acetabulum
    - Unequal gluteal folds
  - **Older infant and children**
    - Affected leg is shorter
    - **(+) Trendelenburg's sign** – gluteal folds not balance cause pelvis attempts to maintain balance
- **Mgt** –
  - Birth to 6 months – **splinting** – hips are abducted
  - 6-18 months – traction – close (mild sedation)/open reduction (general anesthesia) – hip spica cast for 2-4 months (complication: Cast syndrome- cause tight application; Sx – Abdominal discomfort, abdominal cramps, absent bowel sounds) --- flexion-abduction brace for 3 months
  - Older children: operative reduction and reconstruction

Child abduction

- Kidnapping by older adult/pre-school- common

Nrsg Interventions:

- Instruct the parents to teach a child basic guideline about personal safety that include the following
  - Do not go anywhere alone
  - Always tell an adult where he/she is going and when he/she will return
  - Say No if he or she feels uncomfortable with the situation
  - Do not talk with strangers or get into their cars
  - Do not help anyone looking for a lost dog/cat and do not accept candies for strangers
  - If lost in a store, do not wander around looking for the parent go at once to a clerk/guard
  - Children need to learn their full name, address, & parents name
  - Watch for PTSD in any child who experience abduction

NURSING ISSUES

Part 1: Management of care

Legal Nursing:

1. **Crime:** OFFENSE against society that violates a law
2. **Tort:** is a civil wrong /individual

2 kinds

a. **Unintentional**

- ✓ **Negligence** – is a FAILURE to use such care as a reasonably prudent and careful person would use under similar circumstances: Conduct that falls beyond the standards of care – **you did not do what you're supposed to do.**
- ✓ **Malpractice** – improper or unethical conduct or unreasonable lack of skill by a holder of a professional or official position – **you did what you weren't supposed to do**

Person who files the case must show 4 elements:

1. A professional owes a duty
2. A professional breached a duty
3. Harm done
4. The breach of duty was the cause of harm

b. Intentional – an act is substantial to cause an effect

- ✓ **Fraud** – results from deliberate **deception** intended to produce unlawful gains
- ✓ **Defamation** – false communication or a careless disregard for the truth that causes **damage to someone's reputation**
- ✓ **Libel** – written
- ✓ **Slander** – verbal
- ✓ **Assault (**inflicting mental harm/threat**) and battery (**physical harm**)**– occurs when a person puts another person in FEAR OF A HARMFUL or OFFENSIVE conduct
- ✓ **False Imprisonment** – occurs when a client is not allowed to leave a health care facility when there is no legal justification to detain the client; occurs when restraining devices are used WITHOUT an appropriate clinical need. Ex. Pt found in a lock room
- ✓ **Invasion of privacy** – violation of confidentiality, intruding on private client of family matters and sharing of information with UNAUTHORIZED PERSONS:
  - Proper covering of physical body
  - Medical records (property of the hospital/content: property of the client, client can photocopy)
  - Belongings must be protected and may not be searched without specific authorization
  - Conversations confidential photographs and viewing of procedures require consent
  - Control of visitor access to client and client information

REPORT! – someone abuse pt,/ breach confidentiality

Reporting Laws Exception:

What	To Whom
a. Assault/Rape	-authorities (Police)
b. Animal Bites	- animal control center
c. Abuse of elderly	- Adult protective services
d. Child Abuse	- Child protective services
e. Communicable	- CDC & state health dept.
f. Deaths	-Coroner
g. Suicide	- Coroner & authorities
h. Dangerous Drugs	- Authorities & dangerous drugs Board

Patient's Bill of Rights

Privacy
Autonomy
Treatment
Information
Education
NO to restraints
To confidentiality
Services (community)

La leche league- breast feeding mothers

AUTONOMY

I. Informed Consent

Components:

Patient	Doctor	Nurse
-signed 18 yo, alert, conscious, oriented, Pt can't read or write- Thumb mark, check or X	-explains and read the content, complications, - legally gets the signature -sign	-witness -check for the presence of signed informed consent

Contents:

1. Explanation of the Procedure
2. Explanation of the Diagnosis

3. Explanation of the Alternatives
4. Explanation of the Prognosis

Informed consent is needed if:

1. Invasive procedures
2. Sedation/Utilization of general anesthesia
3. Blood transfusion
4. All procedures to be performed in the OR

Qualified to give Consent	Not Qualified
-18 y.o, alert, conscious, oriented -emancipated minor law -married - pregnant - in the dorm but MUST have HS diploma - military service - living independently	-confused, disoriented -pre-medicated -minors who are in the dorm without diploma -juvenile detention -minors-foster care -mentally incapacitated -mentally ill/retarded

Implied consent- ER cases, significant others notified
Informed refusal- pt. suddenly changed their mind even if they signed it

II. Patient's Self-determination Act

- All hospital has a duty to informed pt that upon admission they have the right to advance directive

Advance directive- legal documents that states the pts wish regarding his healthcare in case he become incapacitated to make decisions, signed by atty and 2 witnesses

Nrsg Considerations:

1. Nurse- gives info that he/she has the right to sel-directive
2. Verify legality – originally within the day
3. Members of healthcare team are NOT eligible to sign

Components of an advance directive-
Special Medical Power of atty AKA: Durable power of atty – Only for healthcare decisions; the pt appoint healthcare proxy who will decide on his/her behalf; any person decide DNR/DNI
Living will- if present NO SMPA needed; signed by atty and 2 witnesses; lawyer, attending Dr, significant others who verifies the pt is legally allowed/capable to signed; enforced when the pt is emancipated; NO below 18 yo; NO healthcare professional specially involved in direct care, beneficiaries of his will/estate
Verbal request – ONLY funeral arrangement allowed

Recognize what is the scenario
Ask what the question is asking
Comprehend
Eliminate- 3X

Ethical principle
Organ Donation

Internal organs - kidneys, heart, liver, pancreas, intestines/lungs/skin/bone & bone marrow/cornea

Law- uniform anatomical act
Age of eligibility – 18 y.o. and up
Heart - 40 yo limit
Liver & pancreas- 50 yo limit
Kidneys- 65 yo limit

Who can decide Organ Donation if pt expire:

1. Spouse
2. Adult children
3. Parents
4. Siblings- Adult
5. Guardian

HTLV III- test for presence of HIV

Contraindication to Organ Donation

1. CD/HIV/AIDS & STD
2. Hepatitis (all types)
3. Malignancy dse organ

Drugs that prevent Organ Rejection (4cs)

1. Cyclosporine (Sandimmune)
2. Cellcept
3. Corticosteroids
4. Cytoxan

Echinacea- CI: immune system stimulant/drug interaction
EMS- 911- house- no EMS code, no CPR
DNR-hospital-initiated & signed by MD; inform the crash team NOT to continue

When to STOP CPR

1. Spontaneous breathing
2. Qualified personnel on the team
3. Pt pronounces dead
4. Personnel are exhausted

Nrsg Mgt:
Different Styles of Nrsg Mgt:

1. **Autocratic/Authoritarian Style** – centralized type of mngt; Disaster/systematic discharge duty; only one decide (top)
2. **Laissez-Faire/Freestyle** – let the subordinates decide

3. **Democratic/Participatory**- leader encourage feedback & base on input leader decide

Vertical approach:
Nrsg Mgt.

1. Director of nursing
2. Nurse Supervisor
3. Case Manager/Charge nurse
4. Licensed Practical Nurse/LVN/PN
5. Certified Nurse Act /UAP

Assess 1st – suspected, seems

Incident Report – is a risk mngt tool for quality improvement

When to file an incident Report

1. Injury to the pt/visitor
2. Medication error
3. Any variance: (+) (-) that warrants documents

Steps in reporting and completing an incident report:

1. Attend to client's needs 1st(assess) – do not leave the pt
2. Notify the supervisor
3. Dr. will give order
4. Carry out Dr's order
5. Evaluate pt. response
6. Write if clients is stable – v/s check

Never document that you write an incident report

Other variance/occurrence that warrants documentation:

1. Intoxicated colleague – 1st notify the supervisor
2. Supervisor will assign a team to confront the nurse and conduct an investigation
3. Supervisor will assign a buddy nurse if suspected

Delegation
5Rs
Right task/responsibility
Right Circumstance
Right Person
Right Communication – verbal & written which is specific- so you are not liable if mistakes done
Right Feedback

Principles of delegation

1. A nurse can only delegate those tasks for which that nurse is responsible
2. The delegator remains accountable for the task
3. Along with responsibility for a task, the nurse who delegates must also transfer the authority necessary to complete the task
4. The delegator knows well the task to be delegated
5. Delegation is a contractual agreement that is entered into voluntarily – assertiveness
6. Consider the scope of practice of the nursing personnel

Delegate – authority & responsibility but NEVER the accountability; need to check needs, check skills and area where they come from

Steps to Delegation

1. Define the task
2. Determine the delegate/who will receive it (is the task within the scope of practice)
3. Communicate clearly about expectations regarding the task (state clearly the outcomes you expect)
4. Reach mutual agreement about the task to be completed (understand)
5. Monitor the task and provide guidance as needed
6. Evaluate results (results obtained)
7. Provide feedback to individual on outcomes performance right/wrong

Registered Nurse (RN)

- **Delegator, decision maker**
- Assess, NCP, Initial-admission, Health teaching/discharge teaching, transcribing dr orders, client rounds with dr, client for transfer-for endorsement, invasive procedure sterile procedure-BT, IV, insert cath, tracheostomy, suction, OR, unstable – newly admitted, post-op, complication
- Wound care-complex/complication-RN, drugs- A/E, O2 regulation- routine, chemo, internal implants

LPN/LVN/PN – tech doers, wound care-simple/uncomplicated, meds oral, IM, SubQ, except intravenous, cast/traction without complications, Data collection, intravesical chemotherapy

UAP/CAN –routine of care, feeding but with dysphagia-RN, they can put the cannula, ADL's, ambulation, bathing, feeding, skin care, oral care/suctioning, grooming, v/s, cleansing enema, occult blood test, I & O, urinary dip stick, accuchecks, remind pt

*if other options cannot provide remedy- **REPORT!**

Horizontal Approach

Nrsg Mngt: Dr is the leader

Rn= Dietician = Therapist = nurse clinician = social worker = home health nurse

When do we notify the provider/physician:

1. Medical emergency – Inc ICP, shock, airway problem
2. Surgical emergency – abruptio placenta
3. Alteration in client's v/s
4. Neurovascular compromise (8 Ps)- Circulation, Mobility, Sensation
   - Pain inc
   - Paresthesia- most important
   - Pallor
   - Pulselessness
   - Paralysis
   - Polar-cold to touch
   - Poor capillary refill
5. Toxicity level of the drug- check allergy
6. Alterations in the drug dosage/route/discontinue
   - Not if pt refuse – notify DR as well as cases when sudden change happens

PRIORITIZATION

Nrsg Considerations

1. Client then equipment
2. Nursing process
3. Maslow's hierarchy of needs
4. Safety principles: child and elderly abuse-Prio
5. Understand terminologies
6. Question and answer agreement

Airway	Breathing	Circulation
Block – dentures, tongue, secretions Bronchospasm Insect bites, pruritus, antibiotics, anaphylaxis Facial burns, singed Hot air- cause laryngeal edema *Tracheal deviation	Any change in rate respi Kussmaul's breathing,DKA Cheyne's stokes- Inc ICP – lead to ataxic breathing- apnea Cluster breathing	Anything related to heart and blood vessels Shock, MI Severe vomiting and diarrhea, DHN, lead to electrolyte imbalance – dec BP Neuromuscular compromise 8Ps

Transcultural Nrsg

Culture- norms and practices of a particular group

Culturally Diverse Nurse – refers to variability of nursing approach

Ethnocentrism – perception that one's own ways is best when viewing the world (The American way is the best) – culture wants to be superior

Race- members of the same group share distinguishing physical features

Discrimination – latin *discriminare*- distinguish between, biased, showing partially, unfair treatment of people (race/gender/religion)

Steriotyping – standardized conception of a person or group

- All nurses provide tender love and care
- All drs are intelligent
- Vietnamese are the valedictorians (good in war)
- Professional interpreter
- Male dominant
- Coining and cupping- ventosa; circular bruises in same sites
- Mother is rubbing a coin at the back of the child

Culture Shock – state of distresses when a person is expose to a strange environment

Acculturation – Process of adopting the cultural traits of another group

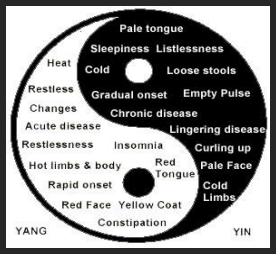
NANDA – Ineffective verbal communication
Social Isolation
Risk for non-compliance
Risk for Injury

Native American – pattern, they will not arrive

- No eye contact
- Speak with a low tone of voice
- Touch hand for greetings- how
- Indian time: do not arrive on a specified time
- They do not believe in germ theory
- Harmony with nature- Pochahantas
- Sacred meal: blue corn meal- inc in simple sugar
- They do not take meds
- Medicine man- healers/albolaryo
- DM type 1/juvenile DM
- Renal failure
- Alcoholism
- Lowest survival for cancer

Asian/Chinese American – 1-2 hours late before the meeting

- Fruits and veg
- Yin-cold (white and dark green); Yang- hot (red,orange,yellow)
- Reluctant to donate blood



- 40 days belief – do not take a bath post delivery
- Disease- TB – migrants dse
- Traditional medicine
- Flexible time schedule
- Professional interpreter
- Eye avoidance
- Do not touch head – Holy/sacred
- Smiles/nods: without understanding -risk for injury
- Dominant: males/sons- eldest son
- Bluish mark round with measurement – cupping
- Donquai – dysmenorrhea
- Ma huang- weight reducing pill, CNS stimulant, loss of appetite, like Ritalin- Inc. dopamine

American- on time, 5-10 min before the time
White Americans- eye contact & Europeans, future time, Germ theory- most compliant, autopsy

- 10 leading causes of death
  - CAD; MI
  - Cancer
  - Respiratory dse
  - Accidents
  - DM
  - Influenza
  - Pneumonia
  - Alzheimer's
  - Kidney Dse
  - Septicemia

African American

- Privacy/Confidentiality
- Time: flexible
- Close family ties
- Do not ask about relationship
- Sickness: Demons & evil spirits
- Significant Person: religious leader: church, mother
- Soul food; fried foods
- High fat and cholesterol Love fatty foods
- Hypertension, stroke
- Cancer (all types except skin cancer)
- DM type 2, Glaucoma
- Skin assessment: pallor-buccal mucusa/palate; Petechiae – palm, soles of the feet; Jaundice- sclera, nail beds
- Female- most significant – Mother

Mexican American – sickness; punishment fr God

- Magical thinking
- Usog: "Evil eye"/ Mal de ojo – just touch the baby post admiration
- Amulet- Señor milagrosa
- Curandero/Curandera- healer
- Post-partum practices- wipe oil cream
- Cancer: gallbladder
- Catholic: parish priest, chaplain
- Protestant: preacher/pastor/minister
- Spanish interpreter
- Wide frame attitudes: time
- Father: decision maker
- Children-most important person
- Soul food: torrillas & chili
- High fat diet – gall bladder/cholecystitis

Japanese Americans – 30 mins before the meeting

- Technology: life is fast
- Great value of time
- Father: decision maker
- Leukemia
- Cancer: skin, breast, brain
- Food: Miso soup
- Cancer: stomach (smoked/cured foods)
- Foods that causes cancer: grilled, processed, pickled, dried ramen, dried fish, fermented foods, alcohol
- Dokuturu-dr

Hinduism- belief-reincarnation

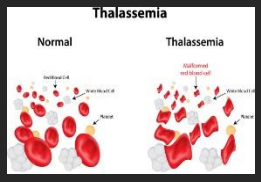
- Practice: yoga/meditation
- Food: vegan/strictly vegetarian
- Organ donation: yes
- Post mortem care: body wrapped in white or orange cloth then cremated
- Ashes: thrown to the holy river- ganges river
- Placing oil in the pt forehead

Buddhism – belief-enlightenment

- Practice: meditation
- Food: vegan
- Organ donation: yes
- Death and dying (+) feeling
- Allow burial & cremation
- Post mortem care: allow the body to be untouched for 3 days
- After death: first touch the top of the head and say "go to the pure land, or precious human birth, heaven or safe place"

Judaism – torah – holy book

- 5 books of moses
- Stress



- Ulcerative colitis, chrons dse
- Cooleys anemia/thalassemia – immunocompromise, wbc immature
- Rabbi-priest
- *Kosier diet-lawful diet & allowed; should be slaughtered; no beef & dairy products at the same time, well done, no pork, leviticus food (shrimps, cramps, shells, fish without fins and scales), like SDA
- When a Jew dies there should always be a family member present

Roman Catholic – Belief- no abortion, natural method of family planning, holy trinity
- Organ donation: yes
- Abortion: no
- Death & dying: call members of the family
- Sacraments
  a. Penance
  b. Holy communion
  c. Anointing of the sick
- No meat on good Friday & Ash Wednesday

Mailine Protestant – No tobacco and alcohol

Islam- food: no pork, no Elixir, no alcohol, no porcine insulin- comes from pigs, capsule case-pork intestine
- Halal- lawful
- Ramadan- June and July, exempted: young old and sick
- Doctors/nurses- female for female patients give meds on right hand minimizing touch therapy
- Koran- (Q'ran)
- Evil eye
- Male dominant
- Death and dying – doctor declares death; never touch the dead body; body washed by relative of same sex, wrapped in white; body positioned facing meca (east)
- Burial within 24 hours
- Tie/ place cotton to any opening

Jehovas witness – food: no blood of animals
- Blood transfusion: only plasma expanders to maintain body fluid in the body
- Can donate organ but with no blood coming from the other person
- Only plasma expanders

Mormons- food restrictions: no tea, no caffeine, no alcohol, no chocolates, no cola, no tobacco, no stimulants
- Women clothing: wear special sacred undergarments at all times

Seventh day Adventist – Food: Leviticus food (avoided)
- Fish without fins and scales
- No squid, no shrimp
- No pork, no crab
- Holy day of obligation: Sabbath day- starts 5 pm Friday to Saturday- 5 pm
- Holy day of obligation: sabbath day-starts 5 pm Friday to Saturday 5 pm- sundown

Safety: Accident Prevention

1. **Infancy**- no small parts, in the crib- no floppy toys
   - Snacks – no grapes, peanuts and hotdogs same as toddlers
   - They roll but cannot go back so NO prone, SIDS (3-6 months)
   - Peak SIDS/CRIB death during fall and winter
   - Crawling – 6-8 months so never leave in a couple bed
   - Immunizations
   - Crib slots- 2.375" distance
   - **Car safety**: infant to 1 year or 20 lbs. infant seat, rear facing, center at the back

2. **Toddlers** – prone to injury/ accidents/MVA, abuse
   - teach the parent to address the negativistic attitude with understanding & humor
   - Accidents:
     -MVA
     -Falls- stairs (gate)
     -Drowning
     -Burns- common cause scalding
     -child abuse/sexual abuse – STD at young age

     -**Car safety**- front facing center, 20-40 lbs, center back seat
     -oral ingestion of poison- common: **aspirin**-anti platelet – **WOF** -unusual bleeding, ototoxic-tinnitus, not a corrosive drug so OK syrup ipecac- intention inducing vomiting within 10 mins otherwise leads to cardiac arrest, not at all time esp. kids- **antidote** Vit K, activated charcoal-binds with toxic subs, and helps eliminate the toxins in the body

Paracetamol – should be child proof container; hepatotoxic- **WOF**: upper right quadrant pain, **Antidote**: Acetylcysteine (Mucomist)

Narcotics – CNS depressant; **WOF:** altered LOC until child sleeps quietly, monitor RR **Antidote:** Narcan

Corrosive Substance- only give H2O -safe,it will dilute; Locked cabinet, High shelves, **WOF:** severe pain cause it will eat up mucosa Call the local poison control center

Lead: AKA plumbism- houses built in 1960's -paint is lead based, Toys, soil, newspaper, H2O with lead pipes before you get H2O allow it to flow for 2 mins before getting water, home based industry (pottery, stained glass window) **WOF:** lead goes to the blood, destroy RBC; bones-iron deficiency anemia, loss of consciousness, activity intolerance, greenstick fracture, pathologic fracture (Ca absorption problem); plan rest periods; diet- blue berry, raisins, prunes, dark colored food – inc iron

3. **Pre-school (3-6) and school-age (6-12)**
   - Prone to head injury and greenstick fracture
   - Wear helmets, elbows and knee pads
   - The rider of the bicycle should stay on the flow of traffic parallel to the cars
   - Emergency accident ingestion – check child's age and weight, drug calculations
   - >40 lbs- pre-school – OK left/right, they need a boaster seat
   - School age- until 12 above 6o lbs – shoulder harness

4. **Adolescent/early adulthood**
   - MVA
   - Suicide
   - STD: chlamydia and gonorrhea – mucopurulent discharge
   - Infectious mononucleosis- avoid contact sports, bicycling, inc risk of splenic rupture – no kissing, sharing utensils during treatment, kissing's dse, espstein barr virus
   - Suicide- late adulthood; evening, Monday (manic) holidays and anniversaries times of renewed pain
   - If one of the twin commit suicide WOF the other twin

5. **Middle adulthood changes in aging**

Physiologic changes

Cognitive decline: Alzheimer's dse, dementia

Safety-long term care facility-name and picture
-hospital ward – room nearest to the station

↓ **Visual acuity:** Presbyopia (farsightedness)
- Notify the Dr to prescribe reading glasses/ convex lenses

↓ **Hearing** – Presbycusis
- ✓ Do not shout/ ↑pitched tone; normal tone and stand in front of the patient

↑ **Lung residual volume**- weakness of diaphragm – Risk for pulmonary disorders ; flu; pneumonia and **influenza (flu) –** H.T. annnual flu shot and pneumoccocal vaccine every 5 yrs

↑ **Clotting** – aspirin , MI/ CAD/ CVA

Impaired tactile stimulation: hypothermia and burns

Color difficult to be distinguised: Purple
- ✓ Easiest - RED

Bone demineralization – osteoporosis → ↓estrogen → Ca+ rich diet; Ca Supplement → Fosamax or inc weight bearing exercise

Gastric enzymes : indigestion → constipation → ↑ OFI/ fiber ; do not abuse laxative lead to constipation

Bladder capacity : shrink→ Incontinence → Kegel's exercise

GFR: drug toxicity

No taste buds – dulled tatse → tendency → ↑ Salt → hypertention

Elder safety

a. Provide safety environment- NO 2nd Floor
b. Restraints- wrist/least
c. Adequate lighting – red light lamps no flash light
d. Toilet seats: raised
e. Grab bars/handrails in hallways & bathrooms
f. Dress/shoes – warm clothing
g. Music- relaxing music

h. Assistive devices- canes and walkers
i. Remove-dials of oven
j. Shower-hot shower- test
k. Bowel & bladder retraining – acid-ash diet-cranberry juice

*Risk for osteoporosis:

Older people
Sedentary lifestyle
Trauma
Excessive smoking
Over a cup of coffee

Gingko biloba- blood thinner; inc blood circulation, no aspirin
Garlic- blood thinner, no aspirin

Disaster Planning

Steps:

1. Know the agency disaster plan
2. Activate the agency disaster plan
3. Activate the personnel
4. Activate the central supply
5. Prioritize the pts

Rescue/discharge/evacuation – no assessment
Ambulatory clients then bed ridden then critically ill- fixed dilated pupil-last

ED/ER/TRIAGE/Disaster
*assess 1st
-Emergent – no delay
-Urgent- delay 1 hour
-non-urgent- immediately in a day delay
Critically ill-last

Bioterrorism – is a terrorism by intentional release or dissemination of biological agents such as bacteria, viruses or toxins

- These are used to cause illness or death in people, animals or plants
- Biological agents can be spread through air, water and food

Category A: high-risk to public or national security, easily spread, result death rate – ex. Anthrax (cutaneous) DOC: doxycycline- early detection 24 hours, if more sepsis
Category B: moderate illness, low death rate (E. coli)
Category C: easily available, produce & spread

Infection Control:

Prevention of infection

Medical Asepsis- routine medical procedure and do handwashing, gloves and gown
Surgical Asepsis- Sterile tech; all OR procedure, scrubbing & sterile gloves and gowns

Prevention of spread of Infection

1st tier standard precaution:

1. To all pts at all times
2. Handwashing: before and after pts contact
3. PPE
    a. Gloves- when handling bodily fluids/secretions and infection materials
    b. Gown- soiling is likely to happen
    c. Goggles, facemask, face shield – splashing is likely to happen; irrigating, suctioning

*greenish- trichomoniasis
Cottage cheese- candidiasis
Grayish fishing – Gardnerella vaginosis, poor hygiene
Syphilis/HSV II- Painless chancre

Needle sticks, pierce& cuts: what to do:

Wash hands
Report to sup
Assess the cut/prick then pt
Prophylaxis – depend on pt condition

*Legionnaire's dse- dirty aircon

Transmission-Based/Secondary precaution

Precaution	Nrsg. Considerations	Diseases
Airborne (AB)	-Particles-size 5 microns -Room: private (keep door close) (-) air pressure Air goes outside atmosphere 6-12 exchanges/hr Cohort: strictly same causative agent Protection: N-95 mask, Hepa filter mask/particulate mask	**PTB**, PTB suspect common HIV pt when unknown source **Herpes zoster** **Varicella zoster** **SARS** **Measles**
Droplet	-particles: size 5 microns -room: private Cohort: Yes, two droplet pt, 3ft separation Distance: 36 inches Protection: surgical mask	**Diphtheria** **Rubella** **Oral pharyngitis** **Pertussis/pneumonia** **Erythema effectiosum**- 5th dse- characterize by prodromal stage flu-like, Sx which is contagious then slap cheek appearance next

		sx or rash in the body lacey appearance check rashes not contagious **Tonsilitis** **Influenza** **Scarlet fever** **Mump/meningitis**
Contact	Particles: secretions from eyes, ears, skins, wounds, genitals Private room Cohort Distance: 3 ft /36 inches Protection: pt must have own set of equipment All protective equip	**MRSA (**present in the skin, if with break DOC methicillin 1st then vancomycin if not improve**) and VRSA (**DOC: IV/IM- imipenem or meropenem- cilastin- prolong effect**)-**common nosocomial infection; staph aureus **VRE-** enterococcus **Clostridium difficile diarrhea** **Hepa B,C,D,G** **Conjunctivitis** **RSV-bronchiolitis** **Impetigo-**non-occlusive dressing adm "cycline" "mycin" mittens No touch
Enteric	Fecal route Private room- washing station/bathroom facility Cohort Protection- gown and gloves	**Hepa A, E** **Shigella** **Salmonella** **Norwalk virus** **Cryptosporidium –** like amoeba, common and prolong hospitalization **Giardiasis –** diarrhea common day care children
Protective or Neutropenic Reverse isolation	Precaution Protection: mask **AVOID:** Crowds Potted plants Fresh flowers Fresh fruits/veg Improperly cooked meat Handling pets Stagnant H2O Live attenuated vaccine Raw foods Gardening danger of toxoplasmosis Handling birds dropping- histoplasmosis – severe respi. Distress syndrome cause by fungi	**Cancer** **Chemo** **AIDS** **HIV** **Organ transplant** **Immunocompromise** **Major Burst/surgery –** more than 50 % of the body **Dec WBC/RBC**

NCLEX UPDATE

Federal/ state laws & legal Organization

Act- federal law

1. **Nurse practice Act**- differs per state
2. **State Board of RN** – safe practice nursing
3. **Consolidated Omnibus Budget Reconciliation Act**- health benefits that protect health insurance coverage when employment is terminated
4. **Good Samaritan laws** – encourage to assist at accidents and emergencies; it cannot protect proven intentionally hurt pt or you did a gross negligence
5. **M'Naghten Rule** – insanity plea by defendant
6. **Tarasoft Act** – mandatory reporting of suicidal/homicidal pts; duty to inform the 3rd party
7. **Handicapped Children Act** – provides schooling in the least restrictive environment
8. **HIPPA or Health Insurance Portability and Accountability Act** of 1996 – protects privacy & confidentiality of cts health information; minimize the chart & tell the dr to log- out
9. **EMTALA- Emergency Medical Treatment & Active Labor Act** – all hospital oblige/duty to attend to emergency treatment
10. **JCAHO (Joint Commission on Accreditation of Health Organizations)** – non- gov't organizations comprise of medical associates, AMA, ANA accreditations

Quality Improvement

- Focuses on process or systems that significantly contribute to client safety and effective client care outcomes
- Objective criteria – used to monitor outcomes of care and to determine the need for change to improve the quality care
- When quality improvement is part of philosophy of a health care agency, EVERY STAFF MEMEBR becomes involved in ways to improve client care and outcomes
- A RETROSPECTIVE "looking back" audit is an evaluation method used to inspect the medical record after the client's discharge for documentation of compliance with the standards
- A CONCURRENT "at the same time" audit is an evaluation method used to inspect compliance of nurses with predetermined standards and criteria while the nurse is providing care **during** stay
- The process is SIMILAR TO THE NURSING PROCESS AND INVOLVES A MULTIDISCIPLINARY APPROACH/ team

SBAR or Situation Background Assessment and Recommendation

- Reduces the incidence of missed communication
- Helps to prevent breakdowns in verbal and written communications, by creating a **shared mental model**
- An effective mechanism to level the traditional hierarchy between drs and other caregivers by building a common language platform for communicating critical events, thereby reducing barriers to communication between healthcare professionals
- As a memory prompt, it **easy to remember** and encourages prior preparation for communication
- Used during handover, can reduce the time spent on this activity thereby releasing time for clinical care

St. John's Wort – anti-depressant -mimics action of SSRI (effectivity after 4 weeks)

- **CI:** SSRI/MAOI/TCA/OTC ampethamines, stimulants; OTC – decongestants, anti-coagulants, anti-depressants
- **Nrsg Mgt:** avoid sun exposure

Echinacea- outbreak viral infection

- Immune system stimulant
- Taken up to 6-8 wks only
- More than 8 wks autoimmune dse
- CI: sandimmune-organ transplant

Gingko biloba – enhances memory

- Blood thinner
- Treatment for dementia/alzheimers
- S/E prolonged bleeding > 9 mins
- CI: pt taking anticoagulants/garlic

Evening primrose/Blue Cohosh – for PMS
Milk Thistle- help regenerate liver cells
Licorice – root product releases high Vit C
Black Cohosh – for menopausal
Cranberry – for UTI

PRIORITIZATION

What: nurse DO 1st- Nursing process
Assess "seem" "suspected"
Ask
Check
Determine
Examine/Evaluate
Find
Gather History
Identify
Judge
If without suspected/seem and with data sp move to Intervention

Who: should the Nurse SEE 1st – ABC

- Client centered
- **F**ind hypoxia (irritability, restless, confusion)
  Airway, breathing – if respi problem, inc. ICP anaphylaxis
  Immunocompromised
  Real bleeding
  Safety
  Try infection (complication)
  Heat= temp= 100.4°F or 38°C – nrsg independently
  Age- too young or too old

Question Problem

1. Physiologic
   a. Complications – the pt complaining, states, experiencing A/E or S/E; acute or chronic\
   b. S/Sx
2. Psychologic
   Risk for injury
   2 types
   a. Directed unto self- suicide
   b. Directed unto others- manic, schizoparanoid

ONCOLOGY/INTEGUMENTARY

Oncology

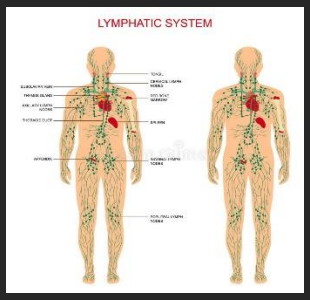
The cell cycle – 23 chromosomes

1. **Interphase (G1)** - Cell accumulates nutrients & protein; RNA synthesis
2. **Synthesis (S)** – DNA synthesis & replication happen
3. **Gap (G2)** – resting phase; gap between synthesis & mitosis
4. **Mitosis (M)** – cell division

Carcinogenesis – conversion of a normal to abnormal cell

1. **Initiation** – 1st exposure to carcinogens; reversible
2. **Promotion** – repeated exposure; DNA mutation/alteration
   Normal – **Protooncogenes** – capacity to control cell growth; mutation --- abnormal oncogene – cancer cell proliferation
   Turn off – "tumor gene suppressor" "DNA repair gene"

3. **Progression** – metastasis thru blood or lymphatic system



Angiogenesis (artery)– cancer creates its own blood supply

Cancer – uncontrolled cell growth

- **Characteristics** - Poor differentiation
  - Altered biochemical properties
  - Chromosomal instability
  - Capacity to metastasize
- **Grading** – cellular aspect of diagnosis
  - Grade 1: well differentiated (mild dysplasia)
  - Grade II: moderately differentiated (moderate dysplasia)
  - Grade III: poorly differentiated (severe dysplasia)
  - Grade IV: undifferentiated
- **Staging** – tumor growth/clinical aspect of Dx
  - Stage O: carcinoma in situ – in place
  - Stage I: tumor limited to the tissue of origin
  - Stage II: limited local spread
  - Stage III: Extensive local and regional spread (distant tissue)
  - Stage IV: metastasis (other organ) end stage

Physiologic responses to Oncologic and Hematologic disorders

General responses

- Pain (putting pressure on other organ/tissue)
- Cachexia (muscle wasting, cancer cell is always hungry)
- Bone marrow involvement
  - Anemia
  - Thrombocytopenia
  - Leukopenia
  - Infection – reverse isolation needed
- Neurologic S/Sx- attack brain 1st
- Respiratory distress
- GI & GU Sx

Seven warning signs of cancer

C – hange bladder & bowel habits
A – sore that does not heal
U – nusual bleeding/discharge
T – hickening/lump
I – ndigestion/impaired swallowing
O – bvious change in moles/warts
N – aging cough/hoarseness of voice >2 weeks

	Benign	Malignant
Infiltration	None	Yes
Capsule	Yes	None
Cell characteristic	Well differentiated	Poor
Metastasis	None	Yes
Spread of growth	Slow/none at all	Rapid

Early detection and screening

1. **Breast self-examination – monthly**; always begin at upper outer quadrant (axillary part)
   - 2-3 days post menses if regular
   - irregular – immediately post menses
   - menopause – same day each month

2. **Mammography** – x-ray of the breast
   - **Prep** – no application of powder, lotion, cream, deo cause it will coat the cancer cell
   - **yearly** starting 40, equivalent to 1hour exposure to the sun

3. **Pap smear** – high risk – sexually active, multiple sexual partner
   - **yearly** starting 21 yo
   - not at high risk – 21 yo every **3 years**
   - 30-65 yo every **5 yrs**
   - Prep – NO vaginal meds, sex, douching 2 days prior

4. **Testicular Self-Exam – monthly**
   - after warm shower in front of the mirror – observe for swelling, palpate soft cord like structure
   - **Normally** spermatic cord
   - **Abnormal** – hard rubber like lump – testicular cancer – **REPORT**

5. **Digital rectal examination** – done to detect prostate cancer
   - **Knee chest position**

- **Yearly** starting 50 yo
- **Abnormal** – hard prostate (cancer), BPH – soft, enlargement

6. **Sigmoidoscopy/colonoscopy** – starting 50 y.o**.,** visualization of the sigmoid every 3 yrs/ visualization of the colon every 5 yrs
   Pre – secure consent
   NPO 6-8 yrs
   Enema 1 hour prior
   Mild sedative
   Position – Left knee chest/lateral sim's
   During procedure: monitor vagal stimulation, monitor HR & RR anything dec REPORT!
   Post: assess perforation, fever, bleeding, abdominal pain

7. **CT Scan** – high form of x-ray, with or without contrast; with contrast (IV/oral)– seek consent, NPO 6-8 hours, assess Crea – to check if normal
   Post: Inc OFI

8. **MRI** – high form of CT scan, if claustrophobic-sedate
   CI: metal implants

9. **Bone Marrow Exam** – Site: infant – long bones – femur/tibia; Adult: posterior iliac crest, used local anesthesia
   Post: monitor infection & bleeding, apply direct pressure at least 30 min or high risk for thrombo.

10. **Oncofetal Antigen** – normal if present in fetus if persisted in adult it is Cancer
    Ex. AFP (alpha feto protein)
    CEA (Carcino embryonic antigen) – colon Ca
    PSA (Prostatic Specific Antigen) – prostate Ca

Treatment Modalities

1. **Surgery**
   Types:
   a. **Diagnostic** – biopsy (aspiration, incisional (sample tissue incises), excisional (entire cyst removes))
   b. **Prophylactic** – goal is to dec risk
   c. **Curative** – to remove the tumor
   d. **Control** – prevent spread
   e. **Palliative** – relieve Sx
   f. **Reconstructive/Rehabilitative** – repair/aesthetic purpose

2. **Chemotherapy** – hepatotoxic, nephrotoxic, cytotoxic – actively dividing the cell: 1st bone marrow (pancytopenia), 2nd hair follicle (alopecia) 3rd mouth (stoma, mucocytic))

a. **Alkylating agent** – cell-cycle nonspecific; toxic to hematologic cells; Inc risk for bleeding; miscoding DNA
   - **Cyclophosphamide (Cytoxan)** – bladder toxic cause hemorrhagic cystitis – painless hematuria so inc OFI
   - **Cisplatin (Platinol) –** nephrotoxic, S.E. alopecia/gonadal suppression/nephrotoxicity
   - **Busulfan (Myleran) –** pulmotoxic, S.E. pulmonary fibrosis & wheezing

b. **Antimetabolites** – cell-cycle specific; toxic to hematologic cells – Inc bleeding; Action – interferes with needed enzyme for synthesis (S phase)
   - **Methotrexate (Rheumatrex)** – avoid folic acid; S.E.: alopecia/ stomatitis/ hyperuricemia/ hepatotoxicity; **Antidote**: Folinic acid ("Leucovorin rescue") – lower form of uric acid
   - **Cytarabine (Ara-C)** – WOF: muco/stomatitis – initial sign of toxicity; S.E. Conjunctivitis with high doses
   - **Mercaptopurine (6-MP)** – S.E. hyperuricemia/hepatotoxic
   - **5 FU (fluoro-uracil)** – S.E. alopecia/stomatitis/diarrhea/photosensitivity; oral thrush – **Nystatin** – white patches- **CALL DR! // do oral care**

c. **Plant alkaloids** – cell-cycle specific; inhibit mitosis (M phase)
   - **Vinca alkaloids: Vinblastine (Velban)/ VinCrinstine (Oncovin) – S.E.** neuropathy/ neurotoxic/ numbness/ paresthesia (WOF: initial sign)/ Constipation/ phlebitis at IV site

d. **Hormones**
   - **Tamoxifen (Nolvadex)** – for breast & ovarian Ca – S.E. Inc. Risk of uterine Ca; S.E. edema/hypercalcemia/inc risk of uterine Ca
   - **Diethystilbestrol (DES) (Stilphostrol):** If taken by pregnancy (male-testicular Ca, Female – cervical Ca)/ S.E. edema/ hyperurcemia/ impotence/gynecomastia in males

- **Testosterone (Depotestosterone):** same with DES
- **Megestrol (Megace)**
- **Pridnesone (Deltasone):** S.E. edema, impotence

e. **Antitumor Antibiotic** – Inhibits CHON synthesis in general; cell-cycle nonspecific
   - **Doxorubicin (Adriamycin)/ Daunarubicin (Daunomycin) – S.E.** irreversible cardiomyopathy, cardiotoxic so ECG at bedside
   - **Dactinomycin (Actinomycin D)** – extensively used for pediatric sarcomas
   - **Bleomycin: S.E.** pulmonary fibrosis – pulmo toxic

Preparation:

Wear – nurse should wear mask, gloves, long sleeves, gowns

Do not – expose to sunlight; refrigerate

Use needles & syringes – biohazard (orange)

Yellow is for infectious

3. **Bone Marrow transplant**
   - Donors: autologous – self
     Allogenesis – family member
     Syngeneic – twin

   Stages:
   a. Harvest – adult 500-1000 mL – aspiration site is same
   b. Conditioning – (pt) by another round of radiation and chemo
   c. Transplant – IV @ bedside
   d. Engraftment – last 3-5 weeks; pt accepts the donated bone marrow; critical to pt cause pt is immunocompromised

   Complications:
   a. Acute rejection (AKA failure to engraft) – pt creates antibodies
   b. Graft vs Host Disease – the donor that produces antibody (bone marrow transfused)
   c. Liver Failure – hepatotoxic conditioning & the donated bone marrow occludes the blood vessel of the liver

4. **Radiation Therapy**

Reduces bone marrow activity (Pancytopenia)
Anorexia
Dry mouth
Irritation of mucusa – muco/stomatitis
Alopecia
Toxic effects/teratogenic
Impaired skin integrity (burn) – red dry scaly
Over fatigue
N/V

External	Internal	
Focus: Skin care Do's: Keep skin dry Clean with mild soap Report! Moist weeping desquamation of skin- 2nd ° Wear loose clothing Sunscreen Don'ts Remove the ink mark Lotion or powder Exposure sunlight Extreme temp Tight clothes	Unsealed Adm- IV/oral	Sealed Adm- beads/pellets-intracavitary cesium (cervix)
	Radioactive – pt & excreta 48-72 hours Health Teaching: Instruct pt to flush toilet twice Clean toilet with bleach Wash soiled lines separately Do not share bathroom with children & preg. Male: sit during urination (avoid splashes)	Radioactive: pt (as long as beads are inside) Excreta is not Prio: Prevent dislodgement Advice pt CBR without bathroom privileges Enema prior to insertion Low fiber diet Supine or up to 30° HOB

Nursing Care –

Room precaution – Private
Activity – CBR without bathroom privileges
Urine & Bowel – Proper disposal
Diet – low fiber
Head of bed: supine/30° HOB

Summary of Radioactivity

Radiation Therapy	Radioactivity	
	Patient	Excretions
External	X	X
Internal (Sealed)	✓	X
Internal (Unsealed)	✓	✓

Principles: S – Shield -lead apron
T – time – up to 30 mins/shift & visiting hours
D – Distance @ least 6 ft, same using docimeter

In cases of dislodgement

Long handled forceps
Lead Apron
Lead-like container lined

Oncologic Disorders

Brain Cancer

Risk Factors:

Boys common
Radiation
AIDS

Inherited
Neoplasm from other organs

S/Sx:

1. Cerebral hypoxia – dec LOC
2. Inc ICP
3. Poor school performance
4. Frontal – (PAST) personality changes, Attention span, Speech slurred, Thinking difficulty
5. Temporal – Short term memory; loose hearing
6. Parietal – senses issues
7. Occipital – vision
8. Cerebellar – balance & coordination

Brain tumor - DI – monitor Urine Specific Gravity

Nursing Dx: Risk for Injury

Mgt.:

1. Surgery – supratentorial – semi-fowlers
   Infratentorial – supine/flat
2. Radiation
3. Chemotherapy

Laryngeal Cancer – voice box

Mets: Lungs

Risk Factors:

Father/male/African american
Forthy & Inc. with age
Family history
Frequent straining voice
Frequent smoking

Dx.

Laryngoscopic Exam
Biopsy

Assessment:

Hoarseness of voice – initial >2 weeks
Foul Odor breath
Weight loss
Dyspnea/Dysphagia – Late
Painless palpable neck mass

Mgt.: 2 types Laryngectomy

1. Partial – with voice after surgery
   - Neck breather
   - Semi-fowlers
   - Concern – Communication – paper and pen/ whiteboard/ call button
2. Total – without voice
   - Prio – open, keep stoma moist – apply petroleum jelly, apply stoma bib, you may use humidifier, avoid aircon
   - Speech therapy – post surgery
     a. Esophageal speech
        - 1wk post procedure with Dr's order
        - 1 hr post meal, instruct burp/belch
        - Disadvantage- hyper nasal sound
     b. Electrolarynx: AKA: Kancer Karoo/ voicebach device
        - Commonly use
        - Disadvantage – robotic voice
     c. TEP – Transesophageal Puncture
        - Dr create fistula between esophagus & trachea
        - Advice create normal voice
        - Strict aspiration precaution

Lung Cancer – spread brain

Causes: Cigarette smoking
Pollutants (Radon gas cemento)

Assessment:

Coughing
Wheezing
SOB
Hemoptysis
Chest pain (Pleuritic type) – upon inhalation-pain
Hoarseness of voice
Dyspnea/Dysphagia
Weight loss

Mgt: Radiation
Chemotherapy
Surgery
Water seal drainage

Thyroid Cancer

Risk Factors: Female
Forty-five & above
Family History

Assessment:

Painless palpable node
Pain in breathing
Pain in swallowing

Mgt:

1. Surgery: total thyroidectomy
   CI: hypocalcemia – WOF – tetany, laryngospasm
   Hemorrhage – highly vascularize, check the nape for assessment
   Edema – low/semi-fowlers/ rest voice
   Laryngeal nerve damage – ask client to speak for assessment, hoarseness – normal 6-

12 hours, if > 12 hours – laryngeal damage; place trache set at bedside

2. Radiation: Systemic- RAI-SI/121
   CI: pregnancy, lactation, children
3. Thyroid replacement – lifetime

Esophageal Cancer

Risk Factors:
- Esophageal Stricture
- Smoking
- Older than 50 yo
- Population of African-American/poor oral hygiene
- Hereditary
- Alcohol

Assessment:
- Dyspnea
- Dysphagia
- Weight loss

Dx: Biopsy

Nursing Dx: Altered Nutrition

Mgt:
1. Surgery – esophagectomy (portion) – anastomosis of stomach
   Teaching – stop smoking & alcohol
   Diet: high CHON & CHO
2. Radiation
3. Chemotherapy

Gastric Cancer

Risk Factors:
- Alcohol
- Born – type A personality (acidic- stress)
- Cured/salty foods
- Dec dietary fiber
- European & Japanese (Asian)
- Family history
- H. Pylori Infection
- Smoking

Assessment:
- Anorexia/vomiting/anemia- damage parietal cells
- Blood in the stool (melena)
- Coffee emesis
- Dec. in weight
- Epigastric pain
- Fatigue

Dx:
1. Gastric analysis
2. Gastroscopy & biopsy

Mgt.:
1. Surgery
   a. Billroth I – gastroduodenostomy
   b. Billroth II – gastrojejunostomy
      CI: dumping syndrome – rapid emptying of stomach and inc. osmotic fluid; low fiber &CHO, Inc fat & CHON; low fowlers or supine
   c. Total gastrectomy – esophagojejunostomy
      CI: Pernicious Anemia
2. Chemotherapy
3. Radiation

Liver Cancer

Risk Factors
- Hepatitis B & C
- Estrogen pills/OTC pills
- People: Africa/Asia
- Asian

Assessment:
- Loss of appetite
- Indigestion
- Vomiting
- Enlargement
- RUQ pain
- Jaundice
- Ascites (dec albumin)
- Hepatomegaly

Dx: Liver biopsy – Position- left side lying, give local anesthesia
- During: Inhale & Exhale then hold breath for 10 sec
- Post: Bleeding prec/Right-side lying

Mgt: Surgery – resection
- Chemotherapy & Radiation
- Liver Transplant – regrow

Pancreatic Cancer

Risk Factors:
- Alcohol/African American men, elderly
- Cigarette smoking
- Pancreatitis
- High fat diet

Assessment:
- Anorexia – malnutrition
- Abdominal pain at night
- Abdominal bloating
- Jaundice

Dx: increased amylase – better indicator, more sensitive
- Lipase & bilirubin

Mgt: Surgery: Pancreatoduodenectomy (Whipple's procedure) – removal of pancreas, common bile duct, gall bladder, portion of duodenum, portion of stomach; CI: Hypovolemic shock
Radiation
Chemotherapy
Drugs necessary after surgery:
Pancrealipase - replace enzyme
Insulin only
Bile salt

Colon Cancer – develop in the cell living the bowel wall; spread in the liver
Cause: Poor diet – inc. fatdec. Fiber
Hereditary
Assessment:
Blood in the stool/rectal bleeding- common sign Ca
Anemia
Anorexia
Abdominal distention
Abnormal
Right – Ascending colon: Watery stool (diarrhea for no reason)
Left – Descending colon: Ribbon like stool (constipation)
Rectal: Alternation diarrhea & constipation
Management: Bowel resection and creation of colonostomy- liquid initially & become formed/ Ileostomy – liquid or watery, lifetime, absorption of water
Color: beefy/brick red
Opening of pouch: 1/8 inch larger
Liquid stool initially
Observe for leakage
Skin care – clean stoma with mild soap & water, Caraya powder – prevent irritation of the skin & skin moisture
The consistency depends on location
Once 1/3 or ½ full empty
Mucus – expected
You avoid gas forming/odor forming

Gas/Odor forming food
Alcohol, artichokes, asparagus
Broccoli; Brussel sprout, beans, onion
Cauliflower, cabbage, celery, corn, caffeinated drinks, cheese, camote
Dairy products
Eggs

Breast Cancer – estrogen dependent; metastasis to bones & lungs thru lymphatic system
Risk factors:
Advancing maternal age/American Women
Breast Ca in the family
Cigarette smoking
Diet: inc fat
Early menarche/late menopause
First child after 35 yo
Gravida - nulliparity
Assessment:
Bleeding/nipple discharge
Retraction of nipple
Elevation of one breast
Asymmetry
Skin dimpling or orange peel appearance (Peau d' orange)
Thickening/lump
Dx:
Mammography
Aspiration biopsy
Serum tumor marker (CA125)
Staging; lymphangiography
Mgt: Surgery: Lumpectomy – removal of lump/tumor
Modified Radical Mastectomy – lymph nodes & tumor breast tissue
Radical Mastectomy/ Halstead – up to muscles and nipple; dec fat and inc Vit
Nrsg Care:
Bleeding or discharge monitoring
Recolapse the Jackson Pratt – apply negative pressure
Elevate affected arm/with pillow/exercise
Assessing BP – unaffected arm to prevent lymph edema, no pressure affected arm
Support arm sling
Turn on unaffected side only

Ovarian Cancer:
- Grows rapidly, spreads fast and is often bilateral
- Metastasis: pelvic organ
- Prognosis: poor prognosis (late detection)
  - Early – asymptomatic

Risk Factors:
Obesity
Vaginal use of talcum powder
Age > 50 yo
Race: American women
Infertility
Abuse of fertility – Clomid – S.E. twin pregnancy

Nulliparity

Assessment:

Abdominal enlargement
Amenorrhea
Ascites
Abdominal disturbances

Mgt:

Surgery: laparotomy, bilateral salphingooephorectomy, TAHB-SO
Chemotherapy: Taxol (Paclitaxel)
Radiation
Immunotherapy
Hormonal agents: Tamoxifen

Endometrial Cancer: Slow growing associated with menopausal years

Risk factors:

Family history
Infertility
Habitual abortion
Obese
Old age
Prolonged use of estrogen pills
Endometrial polyps
Estrogen: inc in level

Assessment:

Post-menopausal bleeding (vaginal, painless)
Watery serosanguinous drainage
Low back/abdominal/pelvic pain
Enlarged abdomen

Dx:

Endometrial biopsy
Fractional Curettage

Mgt:

Surgery: total hysterectomy & bilateral salphingo-oophorectomy
Radiation
Hormonal agents
Progestational therapy: Depo-provera (medroxyprogesterone) or Megestrol acetate (Megace)
S.E. Anorexia, nausea, vomiting, edema
Chemotherapy

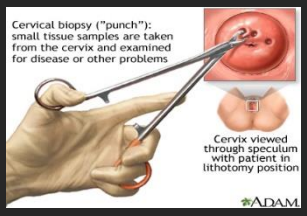
Cervical Cancer

Risk Factors:

Alcohol
Behavior: multiple sexual partners
Chronic instrumentation of cervix
Disease HPV
Daughters of women who took: DES
Early age of sexual intercourse/multiparity/preg

Assessment

Post coital bleeding
Painful intercourse
Period or menstrual irregularities
Progress: foul smelling discharge
Pelvic Pain



Dx:

1. Pap smear
2. cervical biopsy

Mgt:

1. Surgery: Hysterectomy – Conization
2. Radiation: Intracavitary Cesium
3. Prevention: annual pap smear

Prostate Cancer – slow growing; usually androgen dependent; spread spine & legs

Risk factors:

Family history
Age: >50 yo
More common: Obese
African-American
Smoking

Assessment:

Frequency
Urgency
Nocturia
Dysuria
Hematuria
Small urinary stream/dribbling urine

Dx: DRE

Tumor Markers:

Prostatic Specific Antigen O – 4 < 10 = BPH
>10 prostatic Ca
Acid & Alkaline phosphatase

Mgt: 1. Hormonal manipulation – limit the amount of circulating androgens

- Diethylestilbestrol (DES)
- Leuprolide acetate (Lupron)
- Flutamide (Eulexin)
- Goserelin acetate (Zoladex)

2. Orchiectomy – limit production of testosterone (palliative)

3. Transurethral resection of the prostate (TURP) – insertion of a scope into the urethra to excise prostatic tissue

Health teaching: instruct no driving for 2 weeks, No heavy lifting 4-8 weeks – strenuous activity

Cystoclysis actual – output - input

Testicular Cancer

Risk Factors:

Male – 15-40 yo – Caucasian
Linked to DES
Cryptorchidism
Hereditary

Assessment:

Lump
Large
Loaded
Leg Pain
Lymphadenopathy

Dx: TSE & Inc AFP & HCG

Treatment:

1. Surgery – Unilateral Orchiectomy
2. Radiation to lymphatic
3. Chemotherapy – Cisplatin (Platinol)

Nrsg. Intervention

Can resume activities after 1 week
NO lifting > 20 lbs
NO stair climbing
Monthly do TSE
Sutures removed: the pt come back to Dr 7-10 days after surgery

Bladder Cancer

Risk Factors:

Cigarette smoking
Common: Male
Chronic bladder infection
Chemicals: Aniline & wood dye
Contrast medium
Chronic use of Analgesics

Assessment:

Frequent urination
Painless hematuria – initial sign
Dysuria

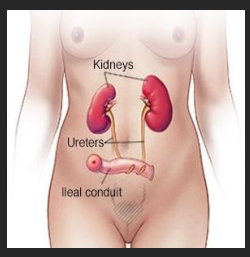
Dx:

Cystoscopy
Biopsy

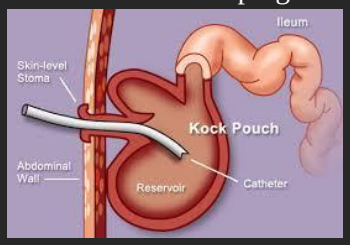
Mgt:

Surgery

a. Cystectomy
b. Ileal conduit (urinary diversions) – anastomosis of ureters to 12 cm long of ileum
   - Incontinent diversion (urination is continuous) – inc risk DHN
   - Ureters to a stoma opening on abdomen



c. Koch Pouch – continent diversion – pouch from stomach – self catheterization every 4-6 hours & before sleeping



Renal Cancer

Risk Factors:

Renal Calculi
Expose to Benzene & gasoline
Nephrotoxic
Asbestos
Link to hereditary

Classic triad: (late)

Palpable abdominal mass
Palpable node
Painless hematuria

Dx.: IVP & CT scan

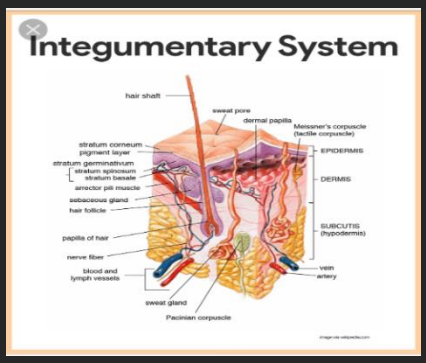
Treatment:

1. Surgery: Nephrectomy
2. Radiation
3. Chemotherapy
4. Immunotherapy-Intravenous Interleukin

ONCOLOGY EMERGENCIES		
Emergency	**Symptoms**	**Managements**
Septic Shock	Dec. BP, Inc HR & RR, fever & chills	Antibiotics IV Hydration therapy
DIC	Severe bleeding Inc Hgb, Hct, platelet Prolong bleeding parameters	Fresh frozen plasma & cryoprecipitate
Pericardial Tamponade- 2D echo confirmation	Dec BP, CO and Inc CVP, JVD, pulsus paradoxus – dec systolic BP 10 inhalation, Distant muffled	Pericardiocentesis O2 Vasopressor
Superior Vena Cava Syndrome – Congestion Upper extremity	Inc ICP, JVD, Periorbital edema, DOB, chest pain, arm & shoulder flushing edema	Diuretics (furosemide) Corticosteroids High-fowlers No BP or venipuncture Upper extremity
Hypercalcemia	Constipation, muscle	Monitor Ca level

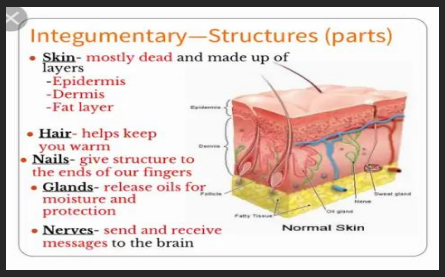
	weakness, DHN, Dysrhythmias	ECG at bedside Do hydration therapy
Spinal cord compression- Cervical – resp Thoracic – ambulation Lumbosacral – GI & GU Sx	Initial – Paresthesia, pain, altered reflexes	Radiation therapy Corticosteroids
Tumor lysis syndrome	Inc K, uric acid, phosphorus Dec Ca S/Sx of renal failure	Do adequate hydration 48 hours before & after chemotherapy Acetazolamide to alkalinize urine Monitor electrolyte

INTEGUMENTARY



Functions:

- Protection
- Sensation
- Excretion
- Temp. regulation
- Vit. D synthesis



Gerontological Considerations

- Loss of subcutaneous tissue
- Degeneration of collagen and elastic fibers
- Loss of melanocytes
- Increased capillary fragility
- Dec. secretion of sweat glands
- Hormonal changes
- Over exposure environmental elements

Physical Examination

- Color
- Skin temperature
- Moisture
- Texture
- Turgor

Diagnostic Studies:

Skin Biopsy – sample tissue examination Dx

Skin allergy testing – allergens or antigen administered into the dermis

Skin culture – determine bacterial, fungal, viral infection

Wood's light examination – viewing skin under UV light thru special glass, identify infection

Primary lesions:

Macule – flat & non-palpable

Ex. Flat moles, freckles

Papules – elevated & palpable but extent is superficial only/epidermis

Ex. Warts pigmented nevi

Nodule – elevated & palpable, extend dermis

Ex. Lipoma, squamous cell carcinoma

Vesicle – fluid filled less than 0.5 cm

Ex. Varicella

Bulla – fluid filled > 0.5 cm

Ex. Contact dermatitis

Pustule – pus-filled

Ex. Acne, impetigo

Plaque – group of papule & scaly

Ex. Psoriasis

Wheal – cutaneous edema

Ex. Urticaria, insect bites

Secondary Lesions

Scales – flaky exfoliation

Ex. Psoriasis

Crust – dried crust with blood, serum, pus

Ex. Scab on abrasion

Bacterial Infections

Impetigo – cause: staphylococcus aureus & B-hemolytic strep

Commonly involved areas: arms, face, legs

Clinical Manifestations: fluid-filled vesicle with honey colored crust

Nrsg Interventions: Prevent spread – contact precaution – gloves & gowns

Maintain proper hygiene

Viral

Herpes Zoster (Shingles)

Cause: Reactivation of varicella

Lesion: Unilateral fluid filled vesicle with crust over a nerve = painful & temp

Nrsg. Interventions

Initial – isolate client – airborne

If crust – contact precaution- give Acyclovir – prevent superinfection

Fungal Infection – ring worm

Tinea pedis – foot

Tinea Corporis – body

Tinea Capitis – Head & face

Tinea Cruris – groin area

Tinea Unguium – nails

Nursing Intervention:

1. Griseofulvin: anti-fungal; oral- once a day/ S.E. – photosensitive
2. Topical medications: Clotrimazole, Miconazole, Terbinafine X 3-4 weeks – 2x/day
3. Hygiene regimen: use own comb, brush, hats or head gear
4. Contact Precaution

Parasitic Infection

Scabies

Cause: Sarcoptes Scabiei

Lesion: brownish black threaded burrows/lesion

Treatment: Scabicide – lindane (Kwell) lotion – discourage – slow effect

WOF A.E. seizure

Health teaching:

1. Advice client to do warm shower
2. Apply lindane neck downwards, avoid neck & face allow up to 12 hours
3. Do warm shower
4. You may repeat after 1week but with Dr's order (so Dr will assess 1st if you are qualified for the dose)
5. Wash soiled linen separately
6. Expose to sunlight

Nursing Interventions:

Secure all members of the family

Control of itchiness/contact precaution

Anti-scabies

Bed linens exposed to sun

Inspect other fomites

Educate & explain drug use

Skin infections

Inflammatory

1. **Eczema –** non-contagious

-Pruritus and hyperirritability of the skin

Cause: irritation or cause skin allergy, stress related; allergy

Allergy: red dry itchy & scaly lesion

Treatment: anti-inflammatory (corticosteroids - topical) apply skin emollient

Health Teaching: Advice non-contagious & avoid harsh substances – perfume, avoid scratching, apply mitten, cut or trim finger nails

2. **Psoriasis –** chronic disease

Cause: Stress

Certain meds – lithium & anti-malarial agent

Autoimmune

Lifestyle (smoking & alcohol)

You have a family history

Epidermal cells produced at 6x to 9x faster than normal

Lesion: bilateral silvery scaly lesion with red base

Nails: pitting, thickening with discoloration

- 10 % clients: arthritis

Mgt: topical therapy – corticosteroids & apply emollients: Coal tar shampoo – most common treatment

Photochemotherapy (PUVA)

Health teaching: PUVA treatment – initial 3-4x a week, then monthly after

Psoralem & UV A – orally taken 1 hr prior to PUVA; inc absorption of UV

Health teaching: instruct client to cover eyes cause blindness

Groin – sterility

NO sun exposure post-procedure 24hours

Malignant lesions

	Basal cell Carcinoma - benign	Squamous cell Carcinoma	Malignant Melanoma
Characteristics	Waxy nodule or fleshy bump arising from basal cells	Small, red nodular lesion or scaly patch arising from keratinocytes	Lesion may be white, blue, gray (+), bleeding, itching
Areas	Face, neck, hands	Upper extremities, lips, mouth	Any part of the body
Metastasis	Rare	Lymphatic or blood	Lymphatic or blood. Metastasizes to brain, bone, liver lung
Prognosis	Good	Good if detected early	Poor

Malignant Melanoma

- Most common cause skin cancer death
- Arise from epidermal melanocyte, or from existing nevi
- Poor prognosis even with treatment

Risk Factors:

1. Exposure to UV light
2. Chronic friction to the skin
3. Exposure to irritating chemicals
4. Fair-skinned person who sunburns easily
5. Genetic Predisposition

Nursing Interventions:

1. Avoid excessive sun exposure
2. Report non-healing wounds
3. Encourage adequate nutrition

Decubitus Ulcer

- Localized area of necrosis of skin & subcutaneous tissue as a result of pressure

Risk factors:

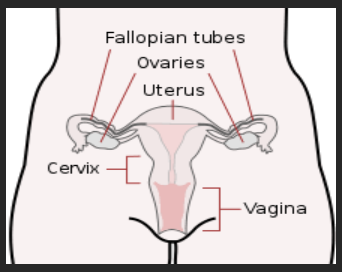
Malnutrition
Immobility – common
Infection
Excessive skin moisture
Equipment's (cast/traction)
Advancing age

Mgt:

Keep skin dry
Turning every 2 hours
Avoid friction
Wound care

Stage	Depth	Appearance	Eschar	Purulent drainage
1	Intact skin	Reddened	None	None
		(does not blance), returns to normal color after 15-20 mins or pressure relief		
2	Epidermis	Shallow ulcer with pink base	White or yellow	Not common
3	Dermis & subQ tissue	Ulcer may have a lip/edge	White, gray or yellow	Common
4	Muscle & bone	Deep ulcer, foul smelling	Brown or black	Common

Maternal and Child Nursing



Female Reproductive Structures

1. **Fallopian tube** – site of fertilization; Muscular tube
2. **Ovaries** – secretions of hormone; estrogen & progesterone; production of ovum
3. **Uterus** – site of implantation (happens post 7-10 days)
4. **Cervix** – protection
   - **Close** – during pregnancy
   - **Open** – labor & menstruation
5. **Vagina** – passageway – fetus, penis, menses
   - Organ of copulation; birth canal

*add note: Chlamydia & Gonorrhea – risk for ectopic pregnancy
PID – can lead to scarring so same Risk for ectopic preg
Smoking – CI for women taking pills cause at risk for clotting formation

Estrogen

Spinnbarkeit & Ferning – inc stretchability of cervical mucus, skin elasticity
Secondary sex characteristic development
Inc libido
Inc osteoblast & fibroblast activity
Inc HDL and dec LDL
Inc vaginal pH (sperm survival)

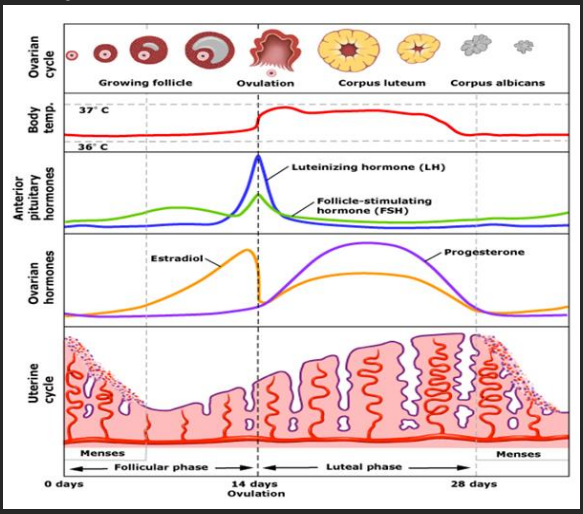
Inc clotting tendency
Inc Risk for certain cancer
Na & H2O retention

Progesterone

Balances the effect of estrogen
Implantation,Inc the body temp (risk for hot flashes)
Glucose Inc. (mild glycosuria)
G.I. function (dec) risk for constipation
Smooth muscle relaxation
(+) prevent Inc BP, dec Uterine contraction
(-) dec cardiac sphincter (risk heartburn)

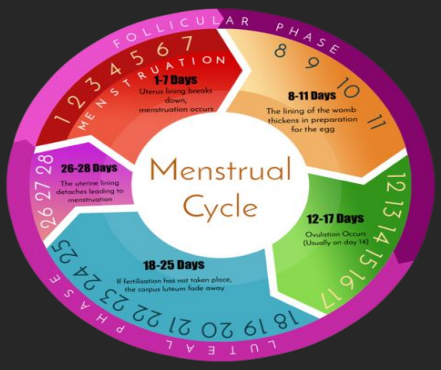
Menstrual Cycle

- Purpose: prepare uterus for pregnancy
- 1st day menstruation – start of menstrual cycle
- 1st day of the next – last



- 2 cycles
  a. Ovarian cycle
    - Follicular phase – days 1-14 – start of cycle up to ovulation
    - Luteal phase – 15 -28 days- ovulation to end of cycle
  b. Uterine cycle
    - Menstrual phase – 1-5 days (bleeding) start of cycle up to shredding
    - Proliferative phase – 6-14 days (thickening of endometrial lining)
    - Secretory phase – 15-28 days (further thickening of endometrial lining)

- Start cycle
  Shredding of endometrial lining (menstrual phase) leads to dec. estrogen & progesterone which signals the *hypothalamus* to release GnRH *then anterior pituitary gland* releases FSH (Responsible for follicular growth) then 1 follicle will mature into Graafian follicle then there will be an inc Estrogen & LH (hormone for ovulation) Proliferative phase then Graafian follicle will rupture & release a mature ovum (ovulation); (the body will become the corpus luteum) so there will be an Inc Estrogen and Progesterone (secretory phase) // corpus luteum will degenerate called corpus albicans if there will be no implantation (dec estrogen and progesterone)

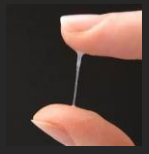


Menstruation		
Interval	Duration	Amount
Normal length of cycle – 21-40 days, average of 28 days	3-7 days average 5 days	30-50- (80 cc)
Abnormal: Oligomenorrhea – long or seldom cycle Polymenorrhea – short and frequent Metrorrhagia – bleeding in between menses	Hypomenorrhea – bleeding < 3 days Hypermenorrhea – bleeding > 7 days	Hypomenorrhea - < 30 cc Menorrhagia – > 80 cc

Ovulation – mid cycle

Releasing of mature ovum (14 days before the onset of the next menstruation; just subtract 14) +/- 2 days pre & post

1. Spinnbarkeit – inc stretchability of mucus; thin & watery, clear & abundant



2. BBT (Basal Body Temp) – affected by progesterone/ *get the baseline temp before arising*; day before the ovulation body temp will drop to 0.5 – 1 °F, ovulation day – Inc.

Health teaching – avoid coitus for 3-4 days upon noted temperature changes

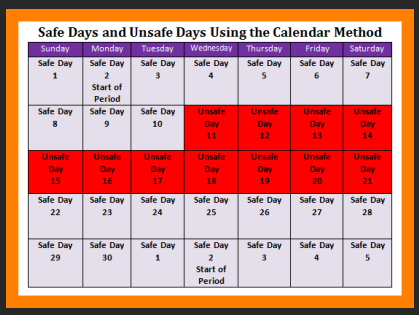
3. Mittelschmerz – lower abdominal pain coincides with rupture & during ovulation

4. Ferning – pattern (+)

Contraception

A. Natural

1. **Rhythm/calendar** – record 6 consecutive cycles; determine the shortest (minus 18) & longest cycle (minus 11)
   - **Regular cycle:**
     - 28 – 18 = 10th
     - 28 – 11 = 17th of cycle – NO SEX 10th to 17th



2. **BBT**
3. **Billing's method** – unsafe – thin & watery mucus; safe – think and ropey mucus
4. **Symptothermal** – combination billing & BBT
5. **LAM** – Lactation amenorrhea method – BF can suppress ovulation
   - **LAM criteria:**
     - The child must be < 6 months
     - The woman must be purely breast feeding
     - Amenorrhea
6. **Withdrawal**
7. **Abstinence**

B. Hormonal

1. **Pills (Estrogen (inc. clotting tendency), Progesterone)** – hepatotoxic
   CI: pt with hypertension, heart problem
   Breastfeeding (Estrogen dec milk supply)
   Cancer
   CVA
   Smoking
   DVT
   Liver problem
   Health teaching: ovulation resumes after 6 months post pill cessation
   Stop taking pills:
   Abdominal pain RUQ (liver)
   Chest pain (MI, embolus)
   Headache Severe (HTN & CVA)
   Eye changes (HTN & CVA)
   Severe leg pain (+) Homan's sign
2. Patch
   - Wear: 3 weeks & instruct pt replace weekly & for a week free patch during 4th week (free patch – menses occur)

   - NO make-up, oil, lotion, cream applied breast (fatty tissue), waist (bending)
   - If patch loose – instruct to replace immediately
   - Loose for < 24 hours - effective so no need for additional contraceptives
   - OK – swim and take a bath
3. Mini pill – progesterone only so safe for breast feeding mother, take same time daily
   - Missed dose – take immediately
   - Today's dose –take as schedule
   - Health teaching – use another form of contraception for 48 hours on top of mini pill if there's a missed dose
4. Morning after pill – within 72 hours post coitus
5. IM Depo-provera (Progestin) – IM every 3 months; do not massage inc absorption and shorten the effect
   S.E.: amenorrhea
   Health teaching – ovulation will resume 6-18 months after cessation
6. Subdermal – effective for 3-5 yrs
   Disadvantage – require surgery, keloid may form

C. Barrier

1. **Intra-uterine Device (IUD)** – prevent fertilization & implantation
   S.E.: bleeding & abdominal pain

Inserted – during menses/after delivery

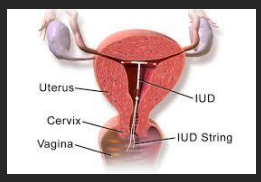
Caution: Period is late (ectopic preg)

Abdominal pain during coitus

Infection S/Sx

Not feeling well

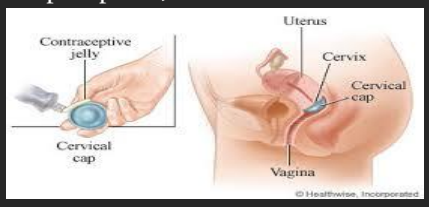
String is missing (dislodge)



2. Diaphragm – prevents sperm from entering the uterus

- Kept in place 6-24 hours
- Refit after – weight change of 15 lbs inc/dec; child birth
- With spermicide

3. Cervical Cap – same diaphragm but easily dislodge; keep in place; 6-48 hours



4. Condom – do not use simultaneously; female/male

Made – latex condom – protect from STD

Natural Skin – NO STD

Failure rate – 15% -male

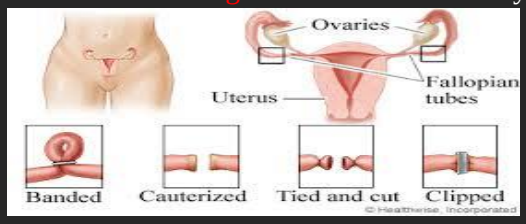
12 %- 22 % Female

- With spermicide (acidic)

D. Surgical (Permanent) – reversal success rate – 70-80%

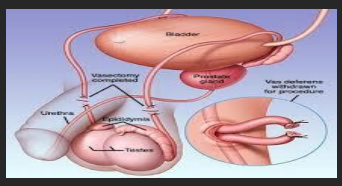
1. Tubal Ligation – Done – cautery, cutting, clamping

Health teaching – resume coitus 2-3 days



2. Vasectomy – excision of vas deference but ejaculatory duct intact – with semen, No sperm

Health teaching: resume coitus after 7 days instruct patient to use an alternative contraception until *2 (-) sperm counts*



PRENATAL CARE:

1. Assessment

a. Prenatal History

Gravida - # of preg/check missed period

Para - # preg – viability (20 weeks & up)

Term – 37 weeks up

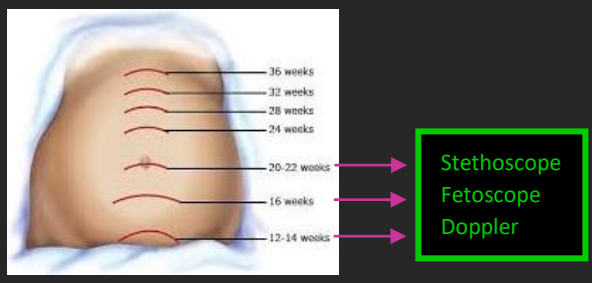
Preterm – 20 – 36 weeks – different from term/ count twins and triplets 1 X 1

Abortion - < 20 weeks

Living

Stillborn – dead

b. AOG – measured in weeks



c. EDC/EDD

Nagele's rule: -3 months + 7 days

LMP: 1st day of the last menstruation

2. S/Sx of pregnancy

Presumptive	Probable	Positive
Breast changes (darkening of areola & breast tenderness) Amenorrhea Urinary freq N/V Chloasma Quickening – maternal perception of fetal movement (20th wk)	(+) Pt (+) Hegar sign (softening of uterus) (+) Goodell's sign (softening cervix) (+) Chadwick's sign (bluish discoloration of vagina) Ballottement – rebounding of fetus, examiners fingers Braxton Hicks – false contractions, painless	FHT 12wks- doppler 16 wks – fetoscope 20 wks – stethoscope Fetal Movement – with examiner Fetal outline UTZ

3. BP monitoring

Normal – 1st tri -no rise BP pregnancy

2nd tri- dec slightly (placental expansion)

3rd tri- return to 1st tri levels

Abnormal: if BP inc

1st tri- H mole

2nd/3rd – PIH/GDM

4. Weight monitoring – entire preg – 25-35 lbs

Normal weight gain

1st tri – 3 lbs – 1 lb/mon

2nd tri – 12 lbs – 4 lb/mon

3rd tri – 12 lbs – 4 lbs/month

5. Diagnostic tests

a. Rubella titer – measure amount of antibodies

- Teratogenic
- Result: 1> 8 immune (woman)
  - 1< 8 susceptible

Immunization: after delivery if susceptible

- AVOID preg after 3 months post immunization
- Allergy – egg & gelatin – components of vaccine
- Health teaching – avoid contact with children/large crowds

Teratogenic Infections:

Toxoplasmosis

Other infections – Hepa, syphilis, HIV – no Breastfeeding

Rubella

Cytomegalovirus

Herpes (CS delivery)

Teratogenic Drugs

Warfarin

Ace inhibitors

Lithium

Thalidomide's

Streptomycin/Steroids

Valproic Acid

Iodides

Rogaine

Tetracycline

Isotretinoin (for pt with acne)

OHA

Teratogenic vaccines:

MMR

Polio

HPV

b. Chorionic Villi Sampling – check genetic d/o

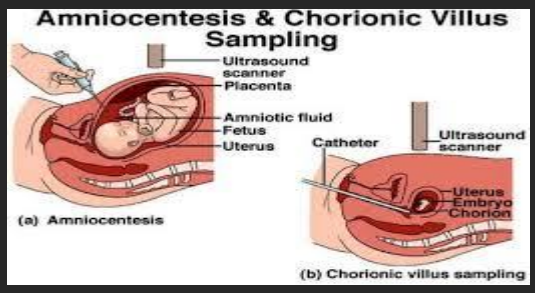
- 8-10 weeks – done
- Catheter is inserted to get a sample

Pre: consent, *full bladder*

Intra: monitor v/s

Post: bleeding & infection

Meds post del: Rhogam given if mother RH (-)



c. Amniocentesis – done 14-16 weeks

Check genetic defect; gender of the baby

Pre: Consent; *void before procedure*

Intra: v/s mom/FHT

Post: WOF: bleeding, infection, PROM - 1° risk

OK- Rhogam

Instruct pt to stay in the facility for 30 min after procedure

d. AFP (alpha-fetoprotein) – wks 15 – 17 weeks

Inc AFP – fetus – neural tube defect – *prevent* increase folic acid intake

Dec AFP – down syndrome

e. Lecithin/Sphingomyelin ratio – N = 2:1

- For baby
- Fetal lung maturation

f. Leopold's Maneuver – pre: empty bladder, warm hands

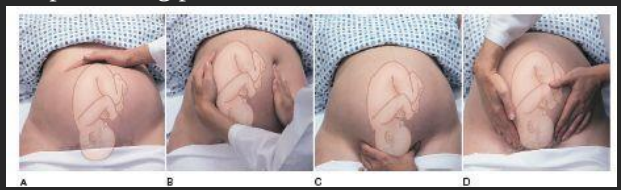
1st -fundus – upper part of uterus

- Check head/butt – hard & round/soft

2nd – fetal back – flat & broad (FHT)

3rd – engagement – immovable

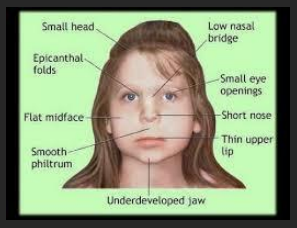
4th – attitude – degree of flexion; we want to know the presenting part – OK – flex/extended



6. Activities of daily living

a. NO Smoking

b. NO amount of alcohol is safe – lead to FAS or fetal alcohol syndrome – irritable & inc sensitivity to stimuli; poor wake & sleep patterns; short nose, small chin, indistinct philtrum, thin upper lip



c. Narcotics (downer)– avoid narcotic withdrawal syndrome/neonatal abstinence – S/Sx – Inc tremors, jittery, fever

d. Traveling/employment – allowed that there is no prolong sitting & standing – prevent complication: elevate the leg, have frequent walks

e. Sexual activity – general change but dec desire (hormones); during pregnancy there is mucus plug & vaginal secretions – leukorrhea which prevent ascending infections; avoid use of tampons – Inc. risk for infection

f. Nutritional requirements – 2500 kcal/day or add 300 to the regular diet; INC folic acid – 400 mcg/dL, iron – 27 mg/dL and Ca 1300 – 1500 mg/day

g. Frequency of pre-natal visits
0-7 months: every month
8-9 months: every 2 weeks
Above 9 months: every week

Physiologic Changes in Pregnancy - Expected

Cardiovascular

- Inc blood vol (30-50%) – specifically plasma
  1. Inc blood then plasma inc. leads to hemodilution causes physiologic anemia: *Mgt*.; Inc iron – dried fruits, green leafy veg, organ meats, Vit. C, Iron supp given

  2. Uterine enlargement leads to inferior vena cava compression (causes: stasis of blood in the lower extremity – leads to ankle edema (elevate legs & have frequent walks) which inc the risk for DVT (varicose vein)) causes dec venous return and so cardiac output dec = effect on fetus (cause of dec uteroplacental perfusion leads to fetal distress) mother (orthostatic hypotension – *Mgt*: position – left side lying)

GIT

1. Nausea & vomiting – HCG hormone
   - Mgt: crackers, toast ice chips upon arising
   - Small frequent meals
   - NO gas forming foods
   - Avoid reflux – sit upright for 2 hours after meal
2. Constipation – release of progesterone
   - Mgt: inc fiber intake & OFI, ambulate (exercise)
3. Heartburn – progesterone (cause)
   - Mgt: Small frequent meal, avoid reflux
4. Hemorrhoids – constipation, uterine compression on rectum
   - Mgt: correct constipation
     Left side lying position with hips elevated
     Cold compress – dec swelling
     Sitz bath – inc circulation

Endocrine

1. Increased APG activity
   a. Inc TSH – so thyroid gland releases thyroid hormones (SNS like)
      - Inc metabolic rate
      - Diaphoresis
      - Palpitations
      - Slight enlargement of thyroid gland
   b. ACTH – so adrenal cortex
      - Inc cortisol – leads too hyperglycemia
      - Inc aldosterone – leads to hyper Na & water reabsorption
   c. MSH – inc melanin – hyperpigmentation
      - Chloasma
      - Linea nigra
      - Darkening of areola
      - Striae gravidarum
2. Inc HCG – maintains pregnancy during 1st tri – risk for hypoglycemia
   - Normal – N/V – 1st tri
   - Abnormal – N/V beyond 1st tri – hyperemesis gravidarum
3. Placental hormones – expected Inc. estrogen, progesterone, HPL (anti insulin)
   - Maintains pregnancy during 2nd & 3rd tri – Ok insulin
   - Disadvantage – blood glucose inc

Musculoskeletal

1. Increased need for Ca – dec. Ca = leg cramps
   - Mgt: Inc Ca & Vit D
2. Muscle relaxation – (progesterone)
   - Relax hip joints – waddling gait
   - WOF: falls
3. Lordosis – Normal, but it can cause low back pain
   - Mgt: pelvic rock, use low heeled shoes

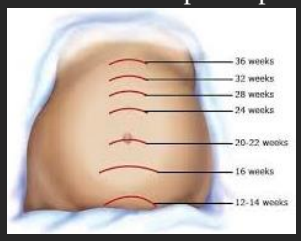
Reproductive:

1. Amenorrhea
2. Estrogen
3. Chadwick's
4. Goodell's
5. Hegar's
6. Colostrum production – during pregnancy

Psychological adaptation		
Emotional Reaction	Rationale	Management
1st tri 1. Ambivalence 2. Denial 3. Rejection	-pregnancy crisis -pregnancy not yet	Focus: Mother -allow verbalization of feelings -focus on body changes "preg is real"
2nd tri 1. Acceptance 2. Fantasy	Pregnancy – evident	Focus: fetus
3rd Tri 1. Fear 2. Anxiety	Impeding labor & delivery	Focus: childbirth

Fetal Growth & Development

1. AOG
   a. 12th weeks – symphysis pubis
   b. 20th weeks – level of umbilicus
   c. 36th weeks – xiphoid process



2. Basis
   d. LMP – 1st day of the last menstruation
   e. Date of quickening – 20th week
   f. Fundic height (Bartholomew's rule)
      i. Pre- void
      ii. Intra
3. Stages of development
   a. Conception to 2 weeks = zygote
   b. 2 weeks – 2 months = embryo
   c. 2 months to term = fetus
4. Emphasis of development
   1st tri: organogenesis
   2nd tri: fetal length
   3rd tri: rapid growth & development of the baby

Developmental Events

1st month

1. Germ layer formation
   a. Ectoderm – outermost portion
      - Epidermis
      - Skin
      - Hair
      - Nails
      - Enamel
      - Cornea
   b. Mesoderm – middle layer
      - Musculoskeletal
      - Circulatory
      - Reproductive
      - Ureters
      - Kidney
   c. Endoderm – inner layer
      - Bladder
      - Urethra
      - Neck
      - GI
2. Brain or NS development
3. Fetal heart beat but not audible
4. Development of trachea and esophagus

2nd month

1. **Organogenesis is complete**
2. Development of **placenta**
3. Development of sex organs

3rd month

1. **Complete placenta and barrier**
2. Production of amniotic fluid
   a. Source: fetal urine
   b. Volume: 800-1500 mL = Normal
   c. pH: 7-7.5 – alkalinic – nitrozine test – turns blue
   d. Color: clear
3. Audible FHT by Doppler
4. Bone formation

4th month

1. Audible FHT by **fetoscope** **(16th)**

2. Visualization of skeletal outline
3. Human face appearance
4. Development of external genitalia
5. Lanugo

5th month – fetus is at the umbilicus
1. **Quickening**
2. Vernix
3. Audible FHT by **stethoscope (20th)**

6th month
1. Term size
2. Scalp hair
3. Pinkish, wrinkled skin

7th month
1. Development of alveoli
2. Production of **surfactant**

8th month
1. Dec lanugo and vernix
2. Rapid fat deposition
3. Viable

9th month
1. Lanugo & vernix caseosa disappearance
2. Amniotic fluid dec
3. Birth position assumed

COMPLICATED PREGNANCY

A. Hyperemesis Gravidarum - > 1st tri
- Excessive N/V (2nd & 3rd)
- Hyponatremia & hypokalemia leads to dec cardiac dysrhythmias leading to dec cardiac output and so dec uteroplacental perfusion
- Starvation/severe DHN
  - Mother – weight loss leading to Inc Hct, ketonuria
  - Fetus – dec fetal nutrition
- Comp.: IUGR, CNS malformation so preterm labor is common
- Mgt: NPO within 24 hrs, IVF – D5LR for 24 hrs
  - Antiemetics
  - I & O
  - After 24 hours without N/V – ok to eat, progress the diet to clear liquids 1st then crackers, toast, cereals then soft diet the regular diet
  - If vomiting recurs – use TPN
    - WOF: fluid overload, hyperglycemia, infection
  - *betamethasone – promote neonatal pulmonary maturity

B. Bleeding in pregnancy
- Check AOG & type of bleeding
- Bleeding leads to blood loss then dec intravascular volume which dec cardiac output, venous return –so dec fetal uteroplacental perfusion leading to fetal distress// effect to the mother – dec renal & brain perfusion leading to renal failure then death

General mgt.;
1. Positioning – left side lying, bedrest
2. O2
3. IVF, blood transfusion
4. V/S, pad count – excessive bleeding-saturation of pad < 1 hour
5. I & O < 30 cc/hour
6. NO vaginal exam or IE – for placenta previa but if pt is at the OR – it's OK to IE
7. Shock S/Sx

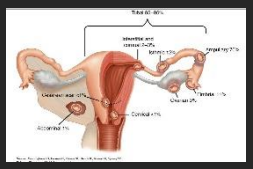
1st Trimester bleeding
1. Abortion < 20 weeks

Types:
a. Induced – planned
   i. Medical abortion – meds given *mifepristone* (abortifacient)
   ii. Surgical abortion – D&C and menstrual extraction/suction evacuation
b. Spontaneous

Types:

Type	Description	Mgt
1. Threatened	-abortion has not yet taken place -No cervical dilation -with/without cramping	-Assess FHT -No strenuous activity -NO coitus for 2weeks
2. Inevitable	(+) cervical dilation & uterine contraction	-collect tissue fragments -cause of H-mole a grapelike structure -D&C
3. Complete	-all products of conception expelled	-No treatment needed just provide support
4. Incomplete	Membranes/placenta retained	D&C
5. Missed	Fetus dies in utero, not expelled	Do UTZ to confirm D&C
6. Habitual	3 or more abortion	Assess underlying causes

2. Ectopic Pregnancy – 95 % fallopian tube



Risk factors: STI
Infection (PID)
IUD
Invetro Fertilization

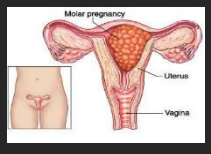
S/Sx: sharp & stabbing unilateral pain at the time of rupture

- Scant vaginal bleeding
- Shoulder pain cause of phrenic nerve irritation
- Cullen's sign (bluish tinged umbilicus)

- Abdomen can become rigid
- WOF: shock S/Sx
- Dx: UTZ
- Treatment: unruptured – meds – Methotrexate (attack fast growing cells) & Mifepristone (abortifacient)
- Surgery: Salphingectomy &
  - Salphingostomy – fallopian tube

Second Tri bleeding

1. Hydatidiform mole – gestational trophoblastic disease; grapelike structure
   - Abnormal proliferation of trophoblastic villi
   - Associated with chorio carcinoma
     - Risk factor:
       - Asian
       - Low CHON intake
       - Type A women who many type O men
       - > 35 yrs old
     - S/Sx:
       - HCG Inc
       - Hyperemesis Gravidarum
       - HTN 1st tri
       - Heart tone absent
       - Height of fundus is > AOG
       - History of past (abortion) & present (passage of grapelike structures)
     - Mgt.:

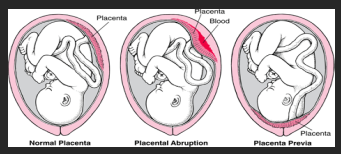


       - Methotrexate
       - HCG monitoring for 1 yr
       - Avoid pregnancy for 1 yr
       - Surgery = D & C or hysterectomy

2. Incompetent Cervix
   - Premature cervical dilatation
   - Risk:

     - Inc maternal age
     - Congenital defects
     - Trauma (cervix)
     - Bleeding painless
       - Color: pink-stained discharged
   - Mgt: Cerclage – McDonalds – sutures are remove 37-38th week – NSVD
     - Shirod Kar – suture not remove – CS

Third Tri Bleeding



	Placenta Previa	Abruptio Placenta
Risk Factors	-abnormal placental implantation (lower part) -Risk factor: -multi gestation -close pregnancy interval; myoma	-PRIO -premature placental separation – CS -Risk factor: -Diabetic -Trauma -Short-umbilical cord -HTN -Cocaine use
Pain	(-)	(+) sharp & stabbing
Bleeding	Bright	Dark – red (bleeding is concealed depending on the site)
Uterus	Soft	Hard/ Rigid / boardlike/ couvelaire abdomen
Management	-V/S, FHT -Position – LSL -Bedrest -WOF: Shock -NO IE not unless at OR -< 30 % = NSVD -> 30 % = CS	-V/S, FHT - LSL - bed rest - O2 - Inc OFI - CS delivery - WOF: shock - DIC and to prevent this give fibrinogen cryoprecipitate

PRIO:

1. Abruptio pregnancy
2. Ruptured ectopic pregnancy

C. DIC – clotting disorder
   - Risk factor
     - Abruptio
     - Placental/fetal retention
     - PIH

- Excessive bleeding in 1 site, so platelet and fibrin will rush to site reason why there's none enough left for the rest of the body
- Mgt.: treat underlying cause
    - Heparin – normal, clotting function
    - Transfuse BT – fibrinogen cryoprecipitate

D. Preterm labor
- Before < 37 weeks
- Risk factor: underlying medical condition
    - Infection
    - DHN
    - Stress
- Mgt: Inc fluid
    - Instruct pt to rest
    - Betamethasone to hasten lung maturity

E. Gestational DM

– HPL – anti-insulin so insulin level dec then glucose can't be utilized leading to inc glucose in response liver convert glycogen to glucose leading to hyperglycemia
- Mother: inc risk for infection
- Fetus: LGA/macrosomia – CS
    - Fetal hyperinsulinemia – fetus will become hypoglycemic at birth
        - Mgt: early breastfeeding
- Dx: 1. 50g oral glucose test – no fasting
    - 7am – 50g glucose given (orange juice)
    - 8 am – blood extraction
    - Result - > 140 mg/dL – perform OGTT

2. 3hours fasting glucose tolerance test (OGTT) oral glucose tolerance test

NPO – 8- 12 hours

After NPO

7am – blood extraction, fasting specimen determine fasting value Normal -95mg/dL-max, after getting fasting specimen, give 100g glucose

8am- Blood extraction; normal value 180; normal inc then do not give glucose

9am -Blood extraction; normal 155 then do not give glucose

10am - Blood extraction; normal 140

Result

If fasting value:

(+) pm - > 95 or 2 out of 4 are abnormal

Mgt: modify diet (adequate glucose or maintain dec fat intake & inc fiber)

Exercise – dec insulin requirement/Think of exercise as other insulin shot

Med – insulin (regular/intermediate)

Avoid OHA/inc insulin 2nd & 3rd tri

Biophysical profile
- Normal result: 8-10
- Abnormal: < 8 assess further
- check fetal well being
- fetal breathing
- fetal movement
- amniotic fluid volume
- fetal tone
- inc heart rate

	Non-stress test	Contraction stress test
Invasive	Non-invasive	
Management	Educate mother to push the button per fetal movement	-Obtain consent -Ask pt to void -Contractions induced via oxytocin or nipple stimulation
Duration	20-30 min	2-3 hours
Measures	FHR acceleration related to fetal movement	FHR deceleration related to contraction
Result RN NST - R CST - N	Normal: *"RN"* Reactive "2-15-15" 2 FHR acceleration by 15 beats lasting 15 seconds Abnormal: Non-reactive – no acceleration Mgt: Receive a snack to stimulate the baby, then after the snack repeat the procedure, if it is still abnormal REFER	Normal: Negative – no deceleration Abnormal: Positive – 50% or more contraction cause of late deceleration Mgt: Stop oxytocin 1. LSL 2. O2 3. Inc fluids WOF: Preterm labor – have pt stay in facility for 30 mins post

F. Pregnancy Induced Hypertension (PIH)

-Acute hypertensive state

-Inc BP- 2nd & 3rd specifically 20th week

-Cause – unknown

-Risk factors:
- Family History
- Heart problem, DM, Renal Problem, polyhydramnios
- Extremes in age
- Multiple gestation/multiparity

- Black people
- Obese
- Low socio-economic background

	BP	Edema	Proteinuria	Others
GDM	140/90	X	X	X
Mild pre – eclampsia	140/90	Lower extremity & some upper parts	(+) 1 to (2)	Wt gain ≥ 2 lbs/wk – 2nd tri or < 1 lbs/wk for 3rd tri
Sever-pre eclampsia	≥ 160/110	Facial edema	(+) 3 to (+) 4	n/v, epigastric pain, visual disturbances
Eclampsia	✓	✓	✓	Seizure or coma Prio – airway

Mgt:

- Monitor patient for 48 hours for progress
  - Bed rest
  - Position – LSL
  - Diet – maintain Na+ intake, Dec fat, Inc CHON
  - Observe seizure precautions
    - Dim lights
    - Room farthest
    - O2 with suction at bedside
    - Padded side rails

MgSO4 – prev seizure

Toxicity – DTR (-)/Normal +2
RR dec
Oliguria
BP dec

Antidote: Ca gluconate

G. Multiple gestation

- Types:
  - Monozygotic – 1 ovum/placenta – identical twins
  - Dizygotic – 2 ovum/placenta – fraternal twins
    - S/Sx: ht of fundus > AOG
      - Multiple heart tones
- Complications:
  - Mother: Placenta previa, PIH, Preterm labor, Anemia, Hydramnions
  - Baby: Low birth weight, congenital anomalies

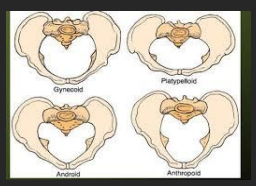
Labor and delivery

Factors affecting Labor and Delivery

4Ps

A. Passage:

I. Gynecoid – rounded, ideal for NSVD



II. Android – heart shape, male pelvis- CS

III. Platypelloid – CS- flat

IV. Anthropoid – NSVD, oval, ape-like pelvis

B. Passenger

I. Presentation

Types:

1. Cephalic – head

Subtypes

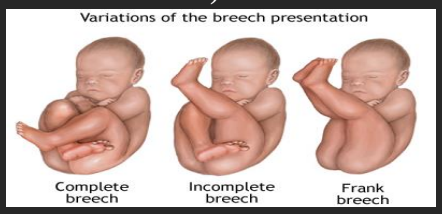
i. Brow

ii. Face

iii. Mentum/chin

iv. Vertex (full flexion) -ideal

2. Breech – buttocks, feet (complete, incomplete, footling, frank – knees extended to chest)



3. Shoulder

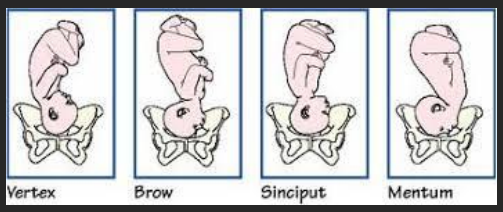
II. Attitude – degree of flexion

i. Vertex – full flexion, NSVD

ii. Sinciput (moderate flexion, NSVD)

iii. Brow (partial extension, CS)

iv. Full (complete extension, CS)



III. Lie – long axis of baby to long axis of woman

2 Types:

1. Longitudinal – spine parallel to each other (cephalic/breech)
2. Transverse – spine perpendicular to each other (shoulder)

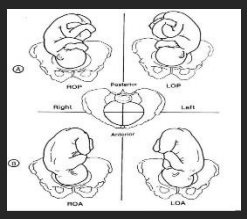
IV. Position – relationship of the presenting part to a specific part of the mother's pelvis

_____ _____ _____

1st blank – determine if the presenting part is mother's R/L

2nd blank – presenting part/fetal landmark (occiput, mentum, sacrum, acromion process/shoulder)

3rd blank – determine if it is facing Anteriorly-moms front/Posteriorly – moms back



V. Station – level of ischial spine

Zero- engage/mid pelvis, at the level of ischial spine

Pelvic outlet

Crowning +4

C. Power – the force that will expel the baby

Types:

a. Primary – uterine contraction

b. Secondary – mother bearing down

Stages of labor & delivery

I. Onset of true labor – full cervical dilatation

II. Full cervical dilatation – birth of the baby (pushing happen so called pushing stage)

III. Birth of the baby to placental delivery

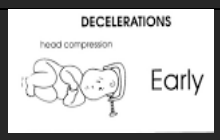
IV. Puerperium (6 weeks post-partum)

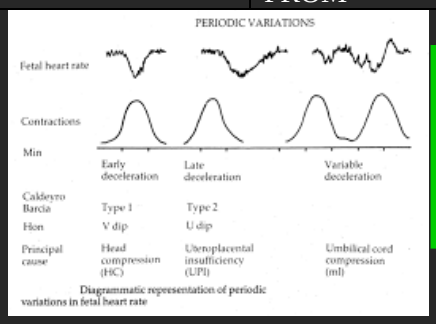
1st stage

	True labor	False
Interval	Regular	Irregular
Contraction	Inc freq, duration & intensity	X
Pain (walking)	Inc	Dec (relieve)
Cervical changes	Dilatation & effacement	None

Phases of labor (No need to familiarize all Just the middle)

	Latent	Active	Transitional
Dilation	0-3 cm	4-7 cm	8-10 cm
Frequency	Every 5-10 min	Every 3-5 min	Every 2-3 min
Duration	20-40 sec	40-60 sec	60-90 sec
Intensity	Mild	Moderate	Strong

FHR Variabilities		
FHR Pattern	Description	Nursing Intervention
Early deceleration  Mirroring Contraction	Dec FHR at the onset of the Uterine contraction then returns to baseline end contraction -fetal compression	Continue to monitor – normal
Late deceleration 	Dec FHR 30-40 sec after the onset of UC & continues beyond the end of UC -uteroplacental insufficiency	In order 1.LSL 2.O2 3.Fluids
Variable deceleration 	Dec FHR is unpredictable relation to UC -cord compression related to cord prolapse or PROM	Knee-chest/ Trendelenburg O2 Inc fluids Cover with sterile saline gauze



VEAL CHOP

Variable_Cord Compression

Early_Head Compression

Acceleration_Okay

Late_Placental insufficiency

2nd Stage

Intrapartal care:

1. Assessment – Mother -v/s, fetus – FHT
2. Nutrition: yogurt & ice chips but check presentation cause if breech – CS

*Lithotomy – risk for DVT & bleeding

3. Comfort measures

a. Position – Squatting on all fours, semi-fowlers/semi sitting

b. Sacral pressure – relieve low back pain

c. Effleurage – relaxation

d. Breathing technique

L-chest breathing

A-abdominal breathing

T-pant-pant blow

e. Encourage voiding every 1-2 hours

f. analgesics

Nubain/demerol – 2-3 hours before delivery to prevent complication which is respiratory depression; Antidote: Narcan

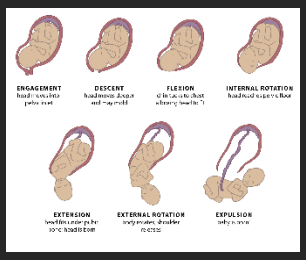
g. Anesthesia

- Pudendal block – episiotomy incision to shorten the 2nd stage & prevent laceration

- Epidural – side lying
  - WOF: hypotension – LSL, O2, Inc fluids
- Spinal – sitting with back arch
  - WOF: hypotension & spinal headache so flat on bed 10-12 hours post op without pillow and avoid elevation cause of bleeding and respiratory depression

Cardinal movements of labor:

Engagement
Descent
Flexion
Internal rotation
Extension
External rotation
Expulsion



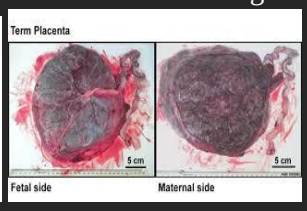
3rd Stage

Signs of placental separation

Lengthening of the umbilical cord
Sudden gush of vaginal blood
Change in uterus shape
Firm contraction of uterus
Appearance of placenta at vaginal opening

Presentation of placenta:

1. Shinny Shultz – fetal side = separation at the center
2. Dirty Duncan – maternal side = at the edges



Labor and Delivery

A. Prolapsed cord

Risk factor-

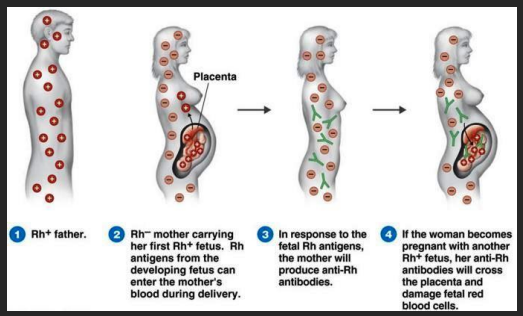
a. PROM – bed rest
b. Placenta previa
c. Cephalopelvic disproportion
d. Hydramnios
e. Breech presentation

Mgt: *Emergency*

Knee chest/tren
Lift just the presenting part avoid manipulating the cord
O2 at 10 L/min
Cover sterile saline
Notify the Dr

B. Rh incompatibility

- Mother – Rh (-)
  - Exposure: after delivery, after abortion, after amniocentesis, after CVS, after puncture, after trauma
  - Dx: Comb's test – check if mother develop an antibody; done 1st prenatal visit, 2nd 28th week; Normal is zero/negative
  - WOF: Erythroblastosis fetalis – severe form anemia for the 2nd baby cause the mother develop an antibody that attack the D - antigen
- Baby – Rh (+) – cause baby have D-antigen
  - Rhogam – passive immunity
  - Administer rhogam on 28th week & within 72 hours after exposure or when bleeding or trauma occurs



4th Stage:

Involution – return to its non-pregnant state

1. Uterus – check if it contracts & firm – to prevent bleeding
   - After delivery – in between the umbilicus & symphysis pubis
   - 1 hour up to 24 hours at the level of the umbilicus there is a dec 1 fingerbreadth per day & 9-10day uterus is non-palpable
2. After pains – abnormal if severe – assess further & refer
3. Lochia – abnormal: foul smelling & large clots

Pattern	Duration	Color
R- rubra	1-3 days	Dark red
S – serosa	4-9 days	Pink to brown
A – alba	10 and up	White

4. Onset of ovulation
   a. Breastfeeding –6 months
   b. Non- breastfeeding – 6-8 weeks
5. Onset of menstruation
   a. Breastfeeding – 3-4 months

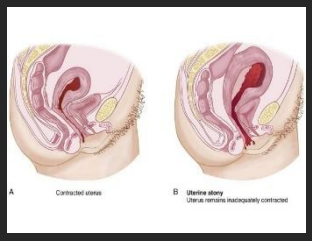
b. Non-breastfeeding – 6-8 weeks

6. Abstinence – 3-4 weeks to prevents cervical & vaginal infection
7. Contraception – barrier method (BF mother) avoid pills
   - Non-breastfeeding – Ok pills

Psychological Adaptation			
Stage	Duration	Feature	Management
Takin-in	1-3 days	Focus: Self, passive, dependent	Focus: Mother, assist ADL's
Taking hold	4-10 days	Focus: Baby, readiness to learn	Focus: Newborn teaching, ideal time Health teaching,
Letting go	10 days up	Focus: new role	Support guidance

Other normal Changes:

- Blood – dec Hct & Hgb
  - Normal 4 pts, 1 gm/250 ml blood loss, if NSVD – 300-500 ml for CS – 500-1000 ml
  - Inc WBC – defense & healing, Inc fibrinogen – risk for DVT
- Temperature – Normal inc within 1st 24 hours
  - Normal 100.4 °F (38°C) cause of DHN
- Diuresis – normal inc urine output – 3L/day up to 5 days



Post-Partal Problems

a. Post-partal bleeding

1. Early

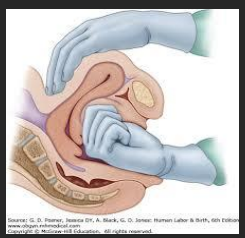
ii. Uterine atony

Risk factor:

- Prolonged labor
- Inc maternal age
- Deep anesthesia/analgesia
- Bladder full

Mgt:

- Uterine massage until firm
- Void every 4 hours
- Methergine, Pitocin (contraction)
- hysterectomy



iii. Lacerations

1. Cervical – Mgt: repair
2. Vaginal – Mgt: repair & vaginal packing; flag the chart cause it must be remove 24-48 hours prior to discharge
3. Perineal – Mgt: repair, inc fluids, stool softeners

iv. Uterine Inversion – uterus turns inside out – this is an emergency leads to severe bleeding

MD/midwife – manual replacement

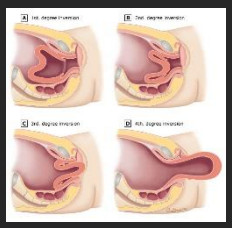
Anesthesia, antibiotics

Tocolytics

O2/v/s/standby CPR

IVF, BT

CS for future pregnancy (no NSVD)



b. Late- > 24 hours

- Retained placental fragments – usually 6-8 days
  - Mgt: D & C
    - Methotrexate – destroy retained fragments
    - Health teaching: monitor lochial bleeding

Others:

- DIC
- Sub-involution – incomplete return of the uterus to its non-pregnant state
  - Mgt: methergine, Breastfeeding, ambulation
- Hematoma – collection of the blood in the subQ layer of the perineum; painful
  - Mgt: ice pack in a towel, analgesics & inc size of hematoma – surgery: incision & ligation of blood vessels

b. Postpartal Infection

- Puerperal infection – infection along the reproductive tract

Predisposing factor: PROM, trauma, local vaginal infection

Mgt: Fowlers

Antibiotics

Change pads regularly

Sitz bath

- Endometritis
  - S/Sx:
    - Fever
    - Body malaise
    - Chills
    - Pain/abdominal tenderness
    - Soft uterus

  Mgt: Same: FAC only then give methergine no sitz bath

- Thrombophlebitis
  - DVT
  - Pre-disposing factors:
    - Inc Fibrinogen
    - Inactivity
    - Smoking
    - Obese
    - Extension of endometrial infection

  - S/Sx:
    - (+) homan's sign: redness, swelling, warmth
    - Prevention: early ambulation
  - Mgt:
    - Elevate affected extremity
    - Warm compress to inc circulation
    - Anti-embolic stocking
    - No ambulation/massage if present

c. Breast discomforts

Discomfort	Assessment	Management
Engorgement	Pain, fullness	BF mothers- regular, warm compress, breast pump, massage, BF bra Non-BF – cold compress, tight bra, binder
Sore Nipples	Cracked	Water & mild soap Position baby slightly different for feeding Vit E lotion, drops of milk Airdry
Mastitis	Infection	Dicloxacillin, cephalosporins safe for BF Check BF – abscess Alternative: breast pump, bottle feeding

Female Reproductive System Disorders

1. Infertility (subfertility) – inability to conceive for 6 months if the mother is >35 yo; 1 yr < 35 yo
   - Check potential pregnancy
     - Primary infertility – no previous pregnancy
     - Secondary – (+) previous pregnancy
     - Mgt: treat the underlying cause
       - If dec hormones – give clomid – stimulate ovulation; S.E. multiple gestation
       - Endometriosis – give Donocrine, Lupron
       - Infection- give antibiotics
2. PID- pt have STI
   - IUD use
   - S/Sx:
     - Pain in the lower abdomen
     - Purulent discharge
     - Inc WBC
     - Inc ESR
     - Develop spotting
   - Mgt: antibiotics, coitus during menstruation, avoid coitus with an infected partner

STI

Infection	S/Sx	Mgt
Chlamydia (common)	Discharge: grayish white, vulval itching	Tetracycline/ doxycycline Erythromycin – for preg
Gonorrhea (common)	Discharge: yellow-green, possibly asymptomatic	Ceftriaxone Doxycycline Amoxicillin
Syphilis – teratogenic	Painless ulcer 1°chancre, non-itchy/painless 2°flu-like Sx next latent next No Sx 3°Gumma, heart, CNS affectations, not contagious, tumor like lesion	Benzathine penicillin
Genital Herpes (type 2) – virus; CS	Painful pinpoint vesicles	Acyclovir (Zovirax) – if life threatening Bathing with dilute NaHCO3 Analgesic
Trichomoniasis - Fungal	Discharge: cottage cheese like	Metronidazole (flagyl)
Candidiasis	Discharge: cottage cheese like Risk Factors: immunosuppress, antibiotic treatment (long term), Pregnancy, DM, oral contraceptives	Nystatin (mycostatin) Fluconazole (Diflucan)
Pubic lice "crabs"	Black/blue spots-eggs/ bite marks	Permethrin (elimite) Lindane (Kwell)
Genital warts (HPV)	Condyloma – cauliflower like lesions	Sitz bath, pap smear, Gardasil – to prevent cervical Ca

Newborn Care:

Prio:

1. Airway
2. Thermoregulation
3. Bonding
4. Proper identification

Criteria	0	1	2
Appearance (color)	Blue - cyanotic	Body-pink, extremities blue = acrocyanosis	Pink
Pulse (HR)	Absent	<100 bpm	>100 bpm
Grimace (reflex irritability)	Absent	Grimace present	Strong cry
Activity (muscle tone)	Flaccid	Some Flexion	Well- flex
Respiratory effort	Absent	Weak cry	Strong cry & good cry

Apgar scoring

Score	Mgt
7-10	Baby is adjusting well
4-6	Airway clearance & O2 Administration
0-3	Resuscitation

Newborn Medications

Medication	Purpose	Site of administration
Erythromycin ointment	DOC to prevent gonorrheal & chlamydial infection	Inner to outer canthus of OU – ointment Drops – lower conjunctival sac
Hepa-B vaccine	1st dose – within 12 hours after birth	IM – anterior lateral vastus lateralis; middle 3rd of thigh
Vit K	Within 1 hour of life	IM – anterior lateral vastus lateralis; middle 3rd of thigh

Few from Mark K
Levels

- A- Yes, it is abnormal and has a presence of dse but Not a priority & you do nothing, low prio
- B- It is abnormal, but you can ignore it or you don't have to be concerned
- C- You do nothing about it all night long and dr find out in the morning you are in major trouble
- D- It is the highest prio

A	B	C	D
Inc Crea AbN HCO3	Hgb- 8-11 > HCT > BNP = > 100 AbN Na+ AbN RBC	> 4 INR < K / > K < 8 Hgb CO2 > 50 PO2 < 78 < 93 O2 Sat-adult < 95 for pedia AbN Na+ - dec LOC < 500 – ANC < 200 – CD4 pH < 90,000	> K = 6 < 6 pH > 60 CO2 PCO2 < 60 pH < 40,000

***2 steps… Step 1: ask yourself, is it an Upper or Downer Step 2: ask yourself, is it an Overdose (too much) or Withdrawal (not enough)**

If they say: "overdosed on an upper" (too much upper)… pick inc things

If they say: "downer & intoxication" (too much DOWNER)… pick dec things

If they say: "withdrawal downer" (don't have enough downer; too little!)

Too little downer makes everything go up.. Too little upper makes everything go down..

Upper overdose LOOKS LIKE downer withdrawal…
Downer overdose LOOKS LIKE upper withdrawal…

Aminoglycosides- A **MEAN O**ld "**-mycin**" when you have a **MEAN O**ld infection- major class that you draw TAP

- **Treatment** for Resisted, Serious, Life-threatening, Gram negative infection
- **Except** Erythromycin, Azithromycin. Clarithromycin – if there is a thro throw it away not included
- **2 Toxic Effect** – "-mycin" think of mice (mickey mouse) think of ears and they are **O**totoxic, monitor hearing, vertigo, dizziness, tinnitus, next is human ears connected shape like a kidney so **N**ephrotoxicity- creatinine the best indicator of kidney function **#1- 24 hour crea** clearance **serum crea #2** , number you draw in the ear is **8** toxic to **cranial nerve # 8** and administer every **8 hours** via **IM or IV** not p.o. not absorb in the gut it will be excreted so no systemic effect
- Except 2 cases use **oral mycin (bowel sterilizer** neomycin and kanamycin) "who can sterilize my bowel = neo kan"
- Oral mycin-1st **hepatic encephalopathy** – ammonia gets too high, so goal is to eliminate ammonia– so use p.o meds for excretion & will also not hurt the liver since it will not be absorbed. And 2nd **pre-op bowel**, The # 1 producer of ammonia-E coli

Trough- drugs at its lowest
Peak- drugs at its highest
TAP levels
Trough levels – draw your trough before the administration
Administer your drug
Peak levels– draw your peak, after the administration

Drug toxicities
***Lithium (go Low)**- common anti /bipolar drug, thera. level 0.6-1.2 toxic level **≥2**
***Digoxin** (**L**anoxin**) go Low**- a-fib and CHF thera. level 1-2 toxic level **≥2**
***Aminophylline/ theophylline –** technically not a bronchodilator – just relaxes a spasm so given before a bronchodi/ thera. level 10-20 toxic level **≥ 20**
***Dilantin/phenytoin – seizure** thera. level 10-20 toxic level **≥ 20**
***Bilirubin (**waste product**) –** test in newborns elevated level 10-20, <13 not subject for hospitalization- sunlight, 14-15 think hospitalization half way toxic they can die toxic level **≥ 20**// adult N 1.4-2.3
***kernicterus**- bilirubin in the brain (condition), around 20, aseptic(sterile) meningitis/encephalitis
***jaundice**- bil. in the skin
***opisthotonos –** position the baby assume when the baby has kernicterus, baby hyperextend due to meningitis, medical emergency
*In what position do you place an **opisthotonos- side**
***physiologic jaundice –** appears yellow 2nd and 3rd day
***pathologic jaundice –** high & yellow at birth - something is wrong

Guessing Use with CAUTION!

*Psyche – nurse examine their own feeling about something – so no countertransference

*Psyche – establish a trust relationship

*Nutrition- select chicken next fish

*never mix medication in children food

*before mixing anything ask permission

*toddler- finger foods

*pre-schooler -leave them alone

*if you know the drug but you don't know the S/E – pick a S/E in the same body system where the drug is tested

*if p.o. select GI

* never tell a child that medicine as candy

*OB – check fetal heart rate

*med surg- LOC, establish an airway

*ABCs

*pediatric skills – growth and dev = always give the child more time to dev

When in doubt call it **normal** – growth and dev only

When in doubt pick the **older** age

Choose the **easier** task

*if you know what a drug does, but not the side effects - how do you proceed?! *great guessing strategy: pick a side effect in the same body system where the drug is working…

*if two answers is opposite one is probably right

*use knowledge – if you don't know reread the question – eliminate/pull out what you don't know and reread

***do not delegate to family** safety responsibilities not unless you document in the chart that you teach them and Ok competency

*Staff management: intervening inappropriate behaviors – tell supervisors, confront them and take over immediately, at a later day talk to them, **ignore it- never an answer.**

*Ask yourself- what they are doing illegal --- **tell** supervisor// if not illegal-ask yourself is the pt/staff in immediate danger of physical or psychological harm = **confront them and take over immediately** // if illegal and harmful **– confront 1st then call sup//** nobody is harmed – if not the too just simply inappropriate – **approach them and talk to them**

* N values

PCWP - 8-12 mmHg
CVP - 5-10 cm H2O
- 3-8 mmHg
Pulse Pressure – 40 mmHg
HCT – Female - 35- 47 %
Male -42 – 52 %
HGB – Female - 12-15.5 g/dL
Male - 13.5-17.5 g/dL
Basophil – 0-1 % (parasitic/allergic)
Eosinophil – 0-3 % (parasitic/allergic)
Monocyte – 3-7% (severe infection)
Lymphocyte – 20-40 % (Viral)
Neutrophil – 50-62 % (bacterial)
WBC – 5,000-10,000 mm3
Platelet – 150,000-400,000 mm3
Residual Vol. NGT feeding < 100 mL/hr
Chest tube drainage - <100 mL/hr
USG – 1.003-1.030
PT - 12-15 sec/ 9-12 sec
APTT - 16-25 sec/ 20-36 sec
BUN - 10-20
CREA - 0.6-1.2
BNP- <100pg/mL
Clotting time – 5-10 min
V/S temp-oral -36.1-37.8°C / 97 – 100° F
Axilla - 1° lower
Rectal - 1° higher
RR – 12- 20 bpm
PR- 80-100 bpm
QRS complex- 0.06 - 0.10 sec
PR interval – 0.12-0.20 sec
Digoxin = 0.5 -2 ng/dL
Folic Acid – 1.8 – 9
Vit B12 – 200-400
Lithium = 0.6-1.2 mEq/L or mmol/L
Albumin (normal: 3.5-5.0 g/dL [35-50 g/L]
Troponin T = 0.1 – 0.2 ng/mL
ESR - <30mm/hr
HDL - > 45 (male) > 55 (female)
LDL - < 130 mg/dL
Total Cholesterol < 200 mg/dL
Triglycerides- 40 – 160 mg /dL (Male)
35-135 mg/dL

Electrolytes – notice the #

Na+ - 135-145 mEq/L
Ca+ - 4.5- 5.5 mEq/L // 8.6-10 mg/dL
K+ - 3.5 – 5.1
P -2.7- 4.5 mg/dl
Mg - 1.5-2.5 mEq/L

ABG

pH – 7.35 – 7.45
paCO2 - 35-45 mmHg
HCO3 – 22-26 mEq/L
paO2 – 80-100 mmHg
SaO2 – 95-100 %

*Complications:

CAD – hemorrhage
Respi Acid: Respi Paralysis
Radiographic – Anaphylaxis
Endoscopy – Perforation
PVC – V. Tach
CAD – MI
Coronary Arteriography – Hemorrhage

*PRIO

Compartment syndrome –Pain
↓DI - BP
↑SIADH-BP
= cerebral edema - ↓LOC
Respi Acidosis = MS, MG, GBS, ALS
TPN = Infection (sterile)
Artificial Pacemaker – dizziness
= sign - decrease cardiac output
Angina – check BP (Before, during, after)
MI – chest pain
Antilipidemic – muscle weakness
= Sign- Rhabdomyolysis
Coronary Arteriography – S/Sx shock
Adm Digoxin – HR & PR – 1 full min

*Antidotes

Digoxin – Digibind
Morphine SO4 – Naloxone (Narcan
Thrombolytics – Aminocaproic Acid (Amicar)
Anticoagulant
Heparin (IV) – Protamine SO4
Warfarin (PO) – Vit K
Enoxaparin (SQ) –protamine SO4
InC Mg – Ca gluconate

*Drugs

Beta- blockers - "-olol" – check BP
Ca-channel blockers -"-dipine" - check BP
Anti-Lipidemic -"-statin"
Fibric acid Derivatives - "fibro/fibrates"
Thrombolytics -"-kinase""-phase"
ACE inhibitors -"-pril"
Proton- pump inhibitors - "-zole"↓stomach .acid
ARB –angiotensin Receptor blocker – "-sartan"
= given if pt can't tolerate "pril drugs"

A1 adrenergic Blocker - "-zocin"
MAOI- antidepressants

*Opposite

DI =	↑ Polyuria	SIADH	↓ Oliguria
	Na		Na
	HCT		↓ HCT
	↓ H2O ab./ ADH		↑ ADH
	↓ BP, weight loss, USG		↑ BP, wt gain, USG

Addison's	↓ Salt, Sugar & Sex	Cushing's ↑
	↓ Cause: hypoglycemia	↑ hyperglycemia
	↓ A: NaH2O	A: NaH2O
	↑ K+, H+	↓ K+, H+

*Drug of Choice / Mgt

↑K+	- Kayexalate
↓K+	- Kalium Durule
↓Na+/SIADH	- Demeclocycline
↑Na+/DI	- Vasopressin/Desmopressin
↓Ca+	- IV Ca+ gluconate/Ca Chloride/carbonate
↑Ca+	- Calcitonin (blood-bone) - Fosamax – bone Mineralization
↓Mg	- MgSO4 IV/Mg Salt p.o.
↑Mg	- Ca+ gluconate

Inflammatory heart dse – penicillin/vancomycin
- corticosteroids
Anaphylaxis - Epinephrine

*Drugs/ Mnemonics

↓K+ = ↓ impulses

K+ wasting diuretics
Bumetanide (Bumex)
Furosemide (Lasix) – loop diuretic
Hydrochlorothiazide
Mannitol – osmotic diuretic

K+ sparing diuretics
Spironolactone
Amiloride
Triamterene

↑Ca – ↓ impulses
- **Bones -** ↓Ca+ cause it's in the blood
- **Stones –** renal calculi
- **Moans –** muscle weakness
- **Goans -** ↓ GIT – constipation

↑Mg =↓ impulses
- **D**TR (-) or absent
- **R**espiratory –↓
- **O**liguria
- b**P** decrease

Heart – V. Tach – polymorphic
Torsades de pointes

MI Mgt
Morphine SO4
Oxygen
Naloxone (Narcan)
Aspirin

Digoxin toxicity
Visual disturbances
Anorexia
N/V
Diarrhea
Abd cramp/pain

Right sided-heart failure
Morphine
O2
Rest: high fowlers
Foley cath
f**U**rosemide
NTG

ACE inhibitor
An hour before meal
refer **C**ough (dry, persistent, irritation)
refer **E**dema eyes & face/elevate

Statins (HMG-COA reductace inhibitor) antilipidemics
Teratogenic
Low LDL
Increase HDL
Pm/@ night
Increase cholesterol synthesis 12pm-5am
Do- increase function test (hepatotoxic)
-annual exam (cataract) = **report:** Mus. Cramps

*Concepts	Inhibitory
Anxiety	↓ GABA
Alzheimer	↓ Acetylcholine

Depression

Excitatory	Inhibitory
↓ Norep	↑ MAOI
↓ Serotonin	

Manic
↑ Norep
Serotonin
Intracellular Na+

Alcoholism & Bulimia Nervosa
↓ Serotonin

Schizophrenia
↓ & ↑ Dopamine

*Distorted EGO
Psychosis - no reality
Schizophrenia – no balance
Ambivalence Schizophreniforms = long term

Schizoid Personality	Schizotypal
D.O.	P. D.O
loners	eccentric
naturally detach	magical thinking; very superstitious

Superego
↑ OCD ↓ Antisocial
Depressed
Anorexia

ID
↑ Manic ↓ Anhedonia
Antisocial
Narcissistic
Addiction

*ECG Sinus Rhythms
Sinus Bradycardia – Stable – DOC = Atropine SO4
PRIO – unstable/emergency – transcutaneous Pacing
Sinus Tachycardia – Stable- DOC = beta blockers & "olol" & "dipine" Ca+ Channel blockers

Atrial Rhythms
Atrial flutter = DOC – stable – Na+ channel blockers
Quinidine & Procainamide
Unstable – cardioversion
Atrial Fib = DOC – stable - Na+ channel blockers
Thrombolytics
Anticoagulants
Antiplatelets
Unstable- cardioversion

SVT (supra ventricular tachycardia)
Stable – DOC
Adenosine
Beta blocker
Ca+ channel blocker
Unstable = cardioversion

Ventricular Rhythms
1.Premature Ventricular Contractions
DOC: Na+ channel blockers
Lidocaine/Amiodarone
O2 sup
Refer for 3 consecutive PVC
6 inches a min (intermittent)
2. Ventricular Tachycardia
DOC – MgSO4; Lidocaine
Unstable: Defib & Cardioversion
3. Ventricular fibrillation
Defibrillation
Epinephrine
Amiodarone **L**idocaine
MgSO4
4.Asystole – CPR
DOC – epinephrine
Ready – Defib

Heart Blocks – DOC = atropine SO4
Permanent – pacemaker

PR interval Prolonged (> .20 sec)

Constant (same) P:QRS		Variable (irregular) reset(another PR interval)	
P=QRS	P>QRS	with reset	without
1°AV block	2ndºtype II Mobitz II without cycle	2nd °type I Wenckebach Mobitz I with cycle	3rd ° heart block complete HB

FVE - CHF

	L- Lungs	R- Systemic
-	Pulmonary edema	- Generalized edema
-	Crackles/rales	- Ascites
-	DOB/coughing	- Weight gain

Addisonian Crisis
- Hypotension, Tachycardia, Tachypnea

Anorexia Nervosa
↑Serotonin

*Risk for Respiratory Disorder
- Elderly
- Respi disorder
- Opioids
  a. Non-opioids (NSAIDS)
  b. Weak opioids – codeine
  c. Strong opioids – morphine

*Spinal fusion – fuse two bones to avoid mov't
*Bone graft more painful than a spinal incision
*Flaccid bladder –
Crede's maneuver – apply manual pressure to the lower abdomen (urge incontinence)
*Asthma- get current peak flow reading 200, baseline is 480
Green – 80-100 % = long term meds
Yellow- 50 – 79 % = short acting bronchodilator
Red - < 50 = open airway, short acting bronchodilator (albuterol) + steroids ; emergency – notify DR
*fecal impaction- oozing liquid stool
*alprazolam- sudden cessation
- rebound insomnia + nightmares
*small children- 1.0 mL IM
Adult- 5 mL
* Birth to 1 month Hepa B (for this moshi moshi anone song all red)
2, 4,6 months DR HIP
D- DTAP
R- Rotavirus
Hib – haemophilus influenzae
IPV- polio vaccine
P-Pneumococcal
12-15 month MMR
Varicella
Hepa A

*Case manager – do not provide direct care
Cost is a concern
*Bicep reflex- nurse places her thumb on the muscle inset in the antecubital space and taps the thumb briskly with the reflex hammer
*Digoxin- improved RR & increase Urinary output (heart failure)
*pulseless dysrhythmias = risk renal failure so check urine output
*RR- 10-24
*Ibuprofen (NSAIDS) – occult bleeding
*the charcoal absorbs the poison & forms a compound that doesn't hurt your child
*Trache – obturator
Resuscitation
Tracheal dilator
Extra trache
*neutropenic – no milk
*Hirschsprung Dse
Megacolon
Aganglionic
Ribbon like stool
*easy to digest- in order
Clear fruit juices
Orange juice
Scrambled eggs
Banana
Moist, tender meats
Vegetables
*jejunostomy tube – continuously in small amounts
*bladder training – urge incontinence
*measles – photophobic
✓ Dim light
Avoid aspirin- Reye's syndrome
*Corticosteroid – GI irritants
- milk and meal allowed
- cause ↓Ca+ absorptions
- with cataract
- CI to pregnant ct. – low but teratogenic effect
- Inc. Sugar – may lead to insulin resistant
- Inc. Salt – fluid excess
- Inc. Sex hormone – hirsutism
* Insulin open- regular insulin
- stored in room temp for 30 days
- standard meds GDM – review insulin peak
*Glipizide (Glucotrol)- avoid oral insulin, used when beta cell function is present
* PTU desired effect - ↓ T3 & T4
* Lugol's Sol. CI prior to thyroidectomy
- Iodine toxicity- abd pain, diarrhea, metallic taste, mouth, throat pain, seizure
- Shrinks thyroid gland
* Disulfiram reaction – headache, flushing, vomiting
* Cephalosporin – Diarrhea
* Alprazolam (Xanax)- for anxiety
- inc focus, so pt can read
* Haldol – teach – use sunglasses & sunscreen
- HOLD – Fever
- Fatal Comp – neurolyptic malignant syndrome
- **F**ever

- **A**lteration of LOC
- **M**uscle rigidity / cramps
- **A**utonomic dysfunction – unstable BP

* Lithium Carbonate(Lithonate) – mood stabilizer, manic
  - ↑ Intake salt - ↑ excretion - ↓ effectivity
  - ↓ Intake salt - ↓ excretion - Toxicity

Vomiting
Ataxia
Nausea
Diarrhea
Abd pain

Almost all toxicity these → Are present

*Carbamazepine (tegretol) - myelosuppression
- hepatotoxic

* Sinemet – take this by evening/pm but no levodopa anymore, you can take it as long as its less than 8hrs
* Mestinon- (+) clear speech
* Phenobarbital (Luminal)- check v/s 1st RR
* Nitrate – Nifedipine - ↓BP
* Digoxin – (+) effective , clear breath sounds

↑Contractility → ↑ Cardiac output
↓Heart rate

* TPA - Clot busters
* Furosemide – Comp / ↓Na+
* MI – no straining
* Epogen – mgt anemia 2◦ to zidovudine
* Report – Hct > 36 % might lead to hypertensive crisis

Therapeutic

Always present when I took my exam

* PT –	9-12 sec	- < 30 sec
INR –	2-3	- < 4.5
PTT-	20 -36 sec	- 60-80
CT (clotting) –	5-10 min	- 16 – 20 min

*HT for pt taking (Retrovir) zidovudine
- return every 2 weeks for blood counts

* Griseofulvin (Grisactin) antifungal affects hair & nail
- photosensitive
- wear sunscreen whenever there is a sun exposure
- with or after meals bind fat, aids in absorption

* tetracycline HCL (Achromycin V) – can vulgaris
- photosensitive
- avoid milk and dairy products = dec absorption
- interfere with absorption sucralfate (carafate), this will prev ulcer

*K+ - no pee – no K+ so damage kidney no K+ adm
Check BUN & Crea

*Phenazopyridine (Pyridium) – analgesic
- take with food to dec gastric irritation
- red- orange urine – normal

*Sulfisoxazole – for UTI
- include in teaching avoid cranberry juice while taking the drug
- form sulfa crystals

* Cisplatin (Platinol) + mannitol – to dec. nephrotoxicity & ototoxic
* If with renal failure avoid Maalox- inc Mg.
*Theophylline – 8 am , 4pm & midnight
- time- release capsule if none make sure it has same interval or equal

*Ipratropium (atrovent)- cross allergy
Atropine sulphate

*too much vit C – lead to diarrhea so ↓Vit C
*leflunomide(arava)- Rheumatoid arthritis, anti- inflame
*HIV- tx lamivudine (epivir) - prophylaxis
* prophylactic drug TB – isoniazid (INH)
Rifampicin
INH
Pyrazinamide
Ethambutol
Streptomycin

he**P**atotoxic
Rifam**P**icin
Red-orange body fluids

Iso**N**iazid
Nervous system + liver reactions
So report Paresthesia +
↑ SGOT(AST) & SGPT (ALT)

Arthralgia
Pyr**A**zinamide
hepatotoxic

Ethambut**O**l
Optic neuritis

Nephrotoxic – BUN & Crea
Strept**O****myci****N**
Ototoxic – tinnitus / deafness

*Peak – active level of drug within the body
Through – weakest
Optimum time for the drug- Immediately before the next dose
*Peak – oral – 60 min

*IV meds – 30 min
*Superinfection- infection on top of the other infection
- Complicate antibiotic therapy
*Allergy penicillin- cephalosporins (cross allergy)
* bone marrow suppression – platelet count
* CI – tetracyclines – enamel erosion, hypoplasia, discoloration of the permanent teeth, CI for children >8 y.o
*Ampicillin Sodium (Omnipen) – Rash- Report
*Histamine – PNS = bronchoconstriction & hypotension

o**T**otoxic – are you hard of hearing?
GeNTamyciN
Nephrotoxic
Neurotoxic

*Vancomycin- prophylaxis for endocarditis
Maybe adm. p.o. or IV
*Ticarcillin disodium (Ticar)- lead to hypothrombinemia(petechiae)= REPORT
-for pseudomonas pneumonia

Runny **N**ose
heROiN

*Cystic fibrosis- nutrition
- mix pancrealipase (Cotoxym S) cap with applesauce before each meal
* Nystatin- spread mouth patient cannot swallow
*Poison Control – CI =induce vomiting < 1y.o.
- recommend vomiting for acetaminophen ingestion (hepatotoxic)
* terbutaline Sulfate- tocolytic action
* active phase labor – Adm of Demerol (meperidine)
- fast onset short duration
*Observe rate and depth of patient's respi – PCA or patient controlled analgesia
*Fentanyl –if not effective- pain
-so notify the dr to inc dose

N/V
Myocardial toxicity
ADriaMyciN
Diarrhea
Alopecia

Visual disturb.-toxic so shift to other drug
Onco drug so do not give if patient
OnCoViN- can't identify (visual loss)

N/V
Constipation and check
Vein for extravasation
Optic neuritis

Alopecia, **N**/V
CytoxAN
Cystitis & hematuria
Zofran – Ondansetron – anti-emetic
H2 antagonist- bed time
Hydrochloric acid inc at night
***Ranitidine – no pain, 4 hours post given
*Reglan- Parkinson's like A/E
*Loperamide (Imodium)- ask the mother when child last voided, GI activity/SNS
*aspirins tinnitus- toxic
*Idiosyncrasy- unexpected reaction to a drug that occurs the 1st time it is given
*Never mix medication in children food

*Antidote	- Toxicity
Acetylcystene	-Acetaminophen
Physostigmine	-Anticholinergic poisoning
Protamine SO4	-Heparin
Succimer	-Lead poisoning
IV 0.4-2 mg PRN	-Dose naloxone opioid poisoning (adult)
Flumazenil	-Benzodiazepines
Deferoxamine	-Iron
Pyridoxine	-Isoniazid
Activated charcoal	-Therapeutic agent-universal antidote
Benzatropine	-drug induces mov't disorder
Penicillamine	-Copper, gold, lead, mercury

*pancrelipase – aids absorption of fats and CHON
*clinical Mx of acute epigastric pain – intervention facilitate relief of pain
*Severe cirrhosis – dev hepatorenal syndrome
Mx . weight gain of <1lb/wk
*Oliguria & Azotemia – occurs abruptly as a result to this condition
*Prio for acute pancreatitis- maintain fluid & electrolyte balance
*Congenital Rubella syn – PDA, sensory neural deafness
*measles- photophobic – dim light, avoid aspirin – can cause Reye's syndrome
*neuromuscular junction
↓ Dopamine - Inhibitory

↑Acetyl
*Huntington- genetic
- Parents, genes, counselling
*Autonomic Dys- nasal stuffiness & inc BP
*Humming sound – Meniere's
*Symmetrel – Dopamine in CNS is
* MG – avoid Flexeril
*CN7- ask to close client's eyes tightly
*CN12 – Ask the client to stick tongue out
*Spinal cord Injury- WOF – AD & check BP
*Bethanecol – use to tx urinary retention CI MG cause cholinergic crisis
*Hyperthyroidism- my chest hurt (pain) when I was sweeping the floor
*boiled food – hyponatremia
*eggnog- alcohol beverage
*glycosylate hgb – N 4.5
*Paresthesia – 1st sign
Pain- unrelieved by meds
Pallor
Pulselessness
*Thirst preg- GDM
*preg- Normal physiologic anemia
*hydatidiform mole S/Sx – 2nd week
*H -CG
-yperemesis gravidarum
-TN
-t of fundus >AOG
-eart tone (-)
-x:grape-like clusters
*Cause bleeding per trimester
1st – abortion
-ectopic preg. sharp stubbing unilateral pain
2nd – H. mole – DOC –methotrexate
-incompetent cervix – painless
3rd previa painless
-abruptio- sharp – colic pain /boardlike abd
-DM risk, HTN, cocaine use
*pt. shoulder dystocia – flex knees to abd to widen pelvic outlet

Condition	Position
Arterial disorders	- Dependent position (low)
Venous disorders	- Elevate
↑ ICP	- Semi-fowlers and head neutral
COPD	-↑ Fowlers
NGT insertion	-↑ Fowlers
NGT feeding/Suction	- Semi-fowlers
Radiographic	
Barium swallow	-↑Fowlers
Barium enema	- left sims
Iodine (IVP)	- Supine/Flat on bed
Endoscopy	
EGD	- Left lateral
Colonoscopy	- Left lateral
Sigmoidoscopy	- Left lateral
Bronchoscopy	- Supine

Feel free to send me an email if you have questions, clarifications and corrections ;)