Precautions (A.C.D.S.)

Airborn Precautions (Surgical Mask – N95, Private Room)

- Measles / Rubeola (Koplik Spots)
- Tuberculosis (maculopurulent)
- Vericella Chicken Pox
- Vericella Zoster/Herpes Zoster/Shingles
- SARS (Severe Acute Respiratory Syndrome)

Contact Precautions (Private Room)

- Scabies
- Herpes Simplex
- Infections of major wounds
- VRE (Vancomycin Resistant Enterococcus)

Enteric Pathogens

- Clostridium Difficile
- E. coli
- Gardiasis
- Rotavirus
- A & E hepatitis with poor hygiene
- Shigella
- Simonella
- RSV (Respiratory Syncytial Virus) / Bronchiolitis
- Shingles
- Pinworm / Enterobiasis
- Pediculosis Capitis (Lice)
- Impetigo
- MRSA (Methicillin Resistant Staphalococcus Aureus)
- Conjuntivitis

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**Droplet Precautions (Private Room)**

- Diptheria
- Rubella
- Roseola / Erythema Sobitum
- Fifth’s Disease / Erythema Infectiosum / Parvovirus
- Pertussis / Whooping Cough
- Pneumonia
- Influenza / Epiglotitis
- Measles
- Mumps / Parotitis / Paroxymyx Virus
- Scarlet Fever
- Staphalococcus Pneumonia

**Standard Precautions (Private Room)**

- Hepatitis
- AIDS
- Infectious Mononeucleosis / Kissing Disease
- Legionnaires Disease *(Opportunistic: Need dedicated equipment in room)*
- STD’s (Gonorrhea, Syphilis, Chlamydia)
- Lyme Disease
- Eczema
- PCP (Pneumocystic Carnii Pneumonia) *(Opportunistic: Need dedicated equipment in room)*
- Psoriasis
- Tinea Capitis
- Karposi’s Sarcoma *(Opportunistic: Need dedicated equipment in room)*
- Rocky Mountain Spotted Fever

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**Airborn Precautions** – Droplet organism very tiny capable of staying in air to infect others.

1. Private Room, negative pressure, vent outside of building, 6-12 air exchanges, UVLight, Door Closed
2. Wear N95 mask when entering room, particulate respirator mask, surgical mask.
3. When client leaves room client wears surgical mask.
4. Cohort only with same organism.
5. PPE when necessary.

**Contact Precautions** – organism acquired by touching.

1. Private Room
2. Gloves & Gown when in contact with client
3. PPE when necessary.
4. Cohort only with same organism.

**Droplet Precautions** – large droplet organism infects only within 3-6 feet.

1. Private Room, Door open, OK.
2. Wear mask when entering room.
3. Client wear mask when leaving room.
4. Cohort only with same organism.
5. PPE when necessary.

**Standard Precautions** – promotes hand washing and use of PPE (eg mask, eye protection & gown) when appropriate for client.

   Apply to all blood and body fluids, non intact skin and mucus membranes.

   Use needless devices when appropriate, dispose of sharp instruments in puncture proof container.

   Don’t recap dirty needles. Clean all blood spills with bleach.
Antipsychotics / Neuroleptics

End in “ine”

A neuroleptic is used to treat schizophrenia

- Thorazine
- Haldol
- Inapsrine
- Risperdal
- Meldaril
- Olanzepine
- Stellazine, Seroquel, Serintil

Sx: Anticholinergic – Dry symptoms, dry eyes, blurred vision, constipation, urinary retention.

TE: Increase fluids, increase fiber, increase exercise.

Can cause blood dyscrasia – sore throat, fever, malaise, bleeding.

AE:

- Photosensitivity
- Orthostatic Hypotension
- Blood Dyscrasia
- Anticholinergic
- Galactorrhea

EPS – Extra Pyramidal Symptoms

- Pseudo Parkinsonian
- Akathesia – inability to remain motionless (constantly moving)
- Dystonia – tortion or twisting of body parts.
- Tardive dyskinesia – tongue slapping, inability to perform voluntary muscle movements.

EPS + Fever = NMS (Neuroleptic Malignant Syndrome)

Causes are sudden decrease or change in THIRMOS drugs.
Tx:

Akineton
Parlodel
Artane (trihexyphenidyl HCl)
Cogentin
Kemadrin
Anti Depressants

Tricyclic Antidepressants

Tofranil
Anafranil
Prozac – not a tricyclic
Elivil
Wellbutrin
Zyban

AE:

Photosensitivity
Orthostatic Hypotension
Blood Dyscrasia
Anticholinergic (most common)

MAOI

Parnate
Nardil
Marplan

TE: Avoid foods rich in tyramine. Processed foods, cheese except cottage cheese, papayas, bananas, avocados, alcohol.

Sx:

Headache
HTN
Tachycardia
N&V

AE: Vomiting, Anorexia, Nausea, Diarrhea
SSRI
- Paxil
- Prozac
- Serzone
- Zoloft

Anti-alytic / Anti-anxiety
- Valium
- Ativan
- Librium
- Xanax / Alprazolam

Anti-manic
- Lithium
  Given for Bipolar Disease
  AE:
    - Vomiting
    - Anorexia
    - Nausea
    - Diarrhea
    - Tremors
    - Ataxia
    - Polyuria

Tx: increase sodium, increase fluids, take oral contraceptives, do not use diuretics.
**TB Hepatotoxic**

- Rifampin
  - Inh – take with B6 to prevent peripheral neuritis.
- Pyrazinamide – PZA
- Elivil
- Streptomycin – (both nephro and ototoxic)

**Drugs that turn urine red/orange**

- Dilantin
- Rifampin
- Macrodentin
- Pyridium

**PPD – Acid Fast Bacilli Test for TB**

- Wheal
- Induration
- Swelling
- Elevation

**Sx: TB**

- Maculopurulent Sputum (bloody sputum)
- Anorexia
- Night Sweats
- Generalized Weakness / Fatigue
- Low grade fever
Hepatotoxic Drugs

Psychotics
Anticoagulants*
S anti-seizure
TB Medications
Acetamenophen / Tylenol
L anti-Lipids
Alcohol & Aventil
Nifedipine

Anticoagulants*:
Fragman
Aggrenox
Ticlid
Coumadin
Heparin
Integrilin
Lovenox
Dipyridamole
Aspirin
Plavix

Signs of Liver Toxicity / Hepatotoxicity
Jaundice
Pururitis
Pale colored stools
Steatorrhea
Dark colored urine
Respiratory Drugs

Anticholinergics – block parasympathetic nervous response.

Atrovent / Inatropin Bromide

SE:

Vomiting
Anorexia
Nausea
Dizziness

AE:

Tremors
Tachycardia
Restlessness
Apprehension
Irritablility
Nervousness

Beta Receptor Agonist “EROL” ending.

Metaperenerol (Alupent)
Albuterol (Proventil, Venteril)
Levalbuterol (Xopenex)
Terbutaline (Brethine) – given to pregnant women to delay labor.

Broncho Dialators – give before ADL’s

Tx: activity induced asthma (xandine drugs)

Aminophylline
Theophylline (10-20 is therapeutic range), take with food.
Glucocorticoids (inhaleds)

- Beclamethasone
- Fluconasone

TE: If no spacer then 1-2 inches from mouth. If spacer, then make sure they have a tight seal. Rinse mouth after each dose to prevent thrush. (Cushing Symptoms).

Leukotriene inhibitors

TE: Take daily dose at HS (Bedtime)

- Montelukast (Singulaire)
- Zafirlukast (Accolate)

Mast Cell Stabilizer

- Cromylin Sodium (Intal) – Not effective during onset of asthma attack. Maintenance dose for COPD and Asthma.

Patients with COPD need daily Peak Flow Rate.

- **Green Zone** 80-100%
- **Yellow Zone** 60-80% - pt needs to take meds within 2-3 hours then call M.D.
- **Red Zone** less than 60%, take meds then go to ER.
HIV AIDS

Virimmune – take on time “Do Not Skip”
AZT “Retrovir” take on empty stomach.
Vivacept “use contraceptives” (causes birth deformities)
Gancyclovir
Acyclovir
Zidovudine – “ZVD” to prevent neonate transmission. Given after 14 weeks gestation. IV during labor and in the form of syrup to neonate for 6 weeks after delivery.

Patient can deliver natural childbirth but cannot breast feed. Patient cannot receive live vaccines (ex OPV, MMR)

HIV Test to confirm infection:

ELISA – Enzyme Linked ImmunoSorbent Assay – A single reactive result does not confirm alone. Need a second ELISA.
Western Blot / IFA – Test for the presence of antibodies.
CD4 (lymphocyst) count – Above 400 not concerned, Below 400 concerned.
Viral load testing – measures the presences of HIV viral genetic material “RNA”

TE:

No fresh fruit
No fresh flowers
No raw meats
Stay away from cat litter “toxoplasmosis”

Stouvdine (D4T Zerit) is used for patients that don’t respond / tolerate conventional therapy.

AE: Peripheral Neuropathy, Monitor gait, Add paresthesia.
Respiratory Ventilators – Causes of Ventilator Alarms

Low Pressure

- Patient stops breathing spontaneously
- Disconnection or Leak
- Leak in the vent or patient airway cuff

High Pressure

- Increased secretions or mucus plug
- Wheezing
- Endotracheal tube displacement
- H₂O in the tube
- Kink in the tube
- Patient biting, coughing, or gagging on the tube.
- Anxiety or fighting vent.

Modes of Ventilation:

- **SIMV** – *Synchronized Intermittent Mandatory Ventillation* – Allows patient to breathe on their own between ventilator breaths. (Ex. 8 breaths from patient, 8 breaths from vent). Used to wean patient off of ventilator.

- **Assist Control** – most commonly used mode. Ventilator is breathing for client if client does not initiate breath.

- **PEEP Positive End Expiratory Pressure** – to prevent closure of alveoli. Keep them open to prevent atelectasis.

- **Controlled Ventilation (CV)** – clients who are unable to initiate a breath. GB, TB, Polio, Total dependence on ventilator setting.
Forms of O₂ Masks:

Non-rebreather mask – provides increased concentration of O₂ 90-100% on expiration. Bag does not deflate.

Ventric Mask – delivers concentrated form of O₂ 40-60%. Used for short term emergencies.
Renal System and Drugs

Nephrotoxic
Aminoglycosides “Nycin”
Dye IV (angiogram)
Antifungal

Contraindicated in Renal Failure
ACE Inhibitor – check creatinine
Aldactone – check $K^+$
MOM – check $Mg^+$

Dialysate Solution Contents:
1. Albumen
2. Glucose
3. Insulin
4. Heparin
5. Electrolytes

End Stage Renal Disease (ESRD)

Na, K, Mg, Phos, BP, BUN, Creatinine, H2O

RBC’s, Ca, Vit D

Avoid NSAID’s
Renal Drugs
1. Colace (laxative)
2. Drugs to lower Phosphorus (↑ Calcium)
   Renagel (Sevelormer)
   Os-cal (Calcium Carbonate) – Take with meals.
   Phoslo (Calcium Acetate) – Take with meals.
   Aluminum Oxide (Amphogel) – Take with meals.
   Colace (Stool Softener)
3. Drugs for Anemia
   a. Procrit
   b. Epoeiten (Epogen)
   c. Folic Acid
   d. Feosol (Iron)
4. To Prevent GI Bleeding
   a. H₂ Blockers
5. Drugs for UTI / Cystitis
   a. Bactrim (Sulfa /TMT)
   b. Fluro-quinolone (Ofoxacin)
      i. Levofloxacin
      ii. Ciprofloxacin
   c. Macrodentin
   d. Pyridium
6. Drugs for ICP patients
   a. Mannitol
   b. Steroids with anti-ulcer
   c. Anti – Seizure meds (See 11 Neuro Drugs)
7. Drugs for Renal Transplant
   a. Steroids – for life
   b. Immunosuppressants
      i. Imuran (Cyclosporine)
8. Drugs for BPH (Benign Prosthetic Hyperplasia)
   a. Flomax (Tamsulosin) – Take with a full glass of water.
   b. San Palmetto / Saw Palmetto
   c. Alpha Receptor
   d. Proscar
9. Drugs contraindicated for BPH (Benign Prosthetic Hyperplasia) Patients
   a. Anticholinergics
      i. Atropine
      ii. Probanetine / Ditropan
   b. Antihistamines (nasal decongestants) with pseudophedrine.
Urinary Diversion Techniques

Ileal Conduit
- No risk for fluid and electrolyte imbalance
- Continuous drainage
- Drain bag needed @ all times
- Stoma Care

Koch Pouch
- Internal Ileal Conduit
- Self Catheter, bladder training
- Neobladder

Nephrotomy
- Connected directly to kidney
- Continuous drainage
- In AM attach “saddle” bags, pouch attached to thigh.
- In PM drain into foley bag during HS.
TPN

Contents of TPN:
- Lipids
- Insulin
- Vitamins
- Electrolytes
- Carbohydrates
- \( H_2O \)
- Heparin
- Amino Acids
- Minerals

Complications of TPN:
1. Air Emboli related to tubing / disconnection of tubing
   a. Tx: Clamp tubing, place on left side lying and call M.D.
2. Pneumothorax - Puncture from insertion of central line.
3. Infection
   a. Tx: To prevent use sterile dressing site change q 48h
   b. Solution IV tubing change q 24h
4. Hyperglycemia – Dry and Hot Give a Shot
   a. Causes
      i. Infusion of TPN too rapidly
      ii. Not enough insulin
      iii. Infection
   b. Tx:
      i. Slow infusion rate
      ii. Administer regular insulin
5. Hypoglycemia – Cold and Clammy Give Some Candy
   a. Causes
      i. Abrupt discontinuation or too much insulin
   b. Tx:
      i. ↓ flow of TPN
      ii. Run D\textsubscript{10}W
      iii. ↓ insulin
6. Hypervolemia – Fluid overload
   a. Tx:
      i. ↓ TPN Flow Rate
      ii. Administer diuretics
Neurological Drugs
Learn Neurological Disorders and their symptoms (Parkinson’s, Guillian Barre, ALS, MS).

1. Mannitol
2. Steroids “Sone”
3. Antacids, PPI (Proton Pump Inhibitor), H₂ Blocker, PGI (Prostiglandin Inhibitor)
4. Anti-seizure Meds – Cause blood dyscrasia (sore throat, fever, bleeding, malaise).
   a. Benzodiazepines
      i. Valium
      ii. Ativan
      iii. Librium
      iv. Xanax / Alprazolam
      v. Clonazepam
   b. Depakote (Valproic Acid)
   c. Carbamazepine (tegretol)
   d. Keppra
   e. Neurontin
   f. Dilantin (Phentoin)
   g. Lamictal
5. SCI (Spinal Cord Injury) drugs
   a. Stool Softener
   b. Muscle Relaxants (VALX)
   c. Steroids “Sone”
6. Anti-hypertensives – for autonomic dysreflexia
   a. Isosorbide Dinitrole
   b. Isosorbide Mononitrate
   c. Nitro (Paste)
   d. Nitro (Patch)
7. Antiviral (encephalitis)
   a. Acyclovir
8. Anticholinesterase (MG)
   a. Neostigmine
   b. Pyridostigmine
   c. Physostygmine
   d. Edrophonium Chloride (tensilon) – Test for MG.
      i. In MG, muscle strength will improve immediately after injection of tensilon.
9. Atropine Sulfate – cholinergic crisis
10. Anti Parkinson Drugs
    a. Levadopa
    b. Amantidine (Symmetrel)
    c. Carbidopa (Sinemet)
    d. Comtan
    e. Eldepryl
11. Anti EPS (Extra Pyrimidal Symptomes)
   a. Akinton
   b. Parlodel
   c. Artane (trihexyphenidyl HCl)
   d. Cogentin
   e. Kemadrin

12. Drugs for MS
   a. Steroids
   b. Muscle Relaxants
      i. Baclofen
      ii. Valium
      iii. Flexoril
      iv. Soma

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Neurological Disorders (GB, ALS, MG, MS, Parkinsons)

**Guillain-Barré Syndrome (GB)**
Acute infectious neuritis of the cranial and peripheral nerves.
Recovery can take years
Reversible

NurDx: Impaired breathing pattern.
Ascending paralysis (starts from the lower extremities and goes up)

Sx: Paresthesia
Weakness of the lower extremities
Progressive weakness of the upper extremities and facial muscles

Tx: Monitor respiratory status
Monitor for autonomic dysreflexia
Monitor for impaired mobility
Monitor cardiac status
Assess for gag reflex
Avoid infection
Plasmaphoresis, immunoglobulin
Prepare to initiate respiratory support (O₂, ventilation, incentive spirometer).

**Amyotrophic Lateral Sclerosis (ALS)**
Lou Gehrig’s Disease
Progressive degeneration of the motor system that causes muscle weakness and atrophy.
Irreversible

NurDx: Impaired Respiratory Pattern

Sx: Difficulty chewing
Dysarthria
Dysphagia
Dysphonia
Tongue Atrophy
Weakness of the hands and feet

Tx: Monitor respiratory status
Monitor for autonomic dysreflexia
Monitor for impaired mobility
Monitor cardiac status
Assess for gag reflex
Avoid infection
Plasmaphoresis, immunoglobulin
Prepare to initiate respiratory support (O₂, ventilation, incentive spirometer).
Myasthenia Gravis (MG)
Not enough acetylcholine at the myoneural junction. Defect in the transmission of nerve impulses (Acetylcholine is the excitatory impulse).

Dx: Impaired breathing r/t respiratory paralysis and failure. (Decending disease).

Sx: Diplopia
    Dysphasia
    Difficulty Chewing
    Difficulty Breathing
    Diminished Breath Sounds
    Ptosis
    Weakness
    Weak Hoarse Voice
    Fatigue

Tx: Monitor respiratory status
    Monitor for autonomic dysreflexia
    Monitor for impaired mobility
    Monitor cardiac status
    Assess for gag reflex
    Avoid infection
    Plasmaphoresis, immunoglobulin
    Prepare to initiate respiratory support (O₂, ventilation, incentive spirometer).

Multiple Sclerosis (MS)
Demyelination of the neurons. Chronic progressive disease of the CNS. Sensory Motor loss.

Dx: Potential For Injury

Sx: Bladder, Bow, and Sexual Dysfunction
    Blurred Vision
    Decreased Sensory Perception (touch, pain, temp)
    Diplopia
    Dysphagia
    Emotional Changes (Depression, Euphoria, Apathy, Irritability)
    Fatigue
    Nystagmus
    Tremors, Ataxia
    Weakness

Tx: Stationary exercise, swimming, cycling. Space exercise apart. ↑ Fluids before exercise.
    Bowel regimen.
**Parkinson’s Disease**

Not enough dopamine at the receptor sites to inhibit the excitatory impulses. This results in a dysfunction of the Extrapyramidal System (EPS) and crippling disability.

**Dx:** Potential for Injury

**Sx:**
- Blank facial expression
- Bradykinesia
- Broad based gait
- Drooling
- Dysphagia
- Difficulty Swallowing
- Handwriting becomes smaller – micrographia
- Involuntary Tremors / Pill Rolling Tremors
- Monotonous Speech
- Muscle Rigidity
- Stooped shoulders / shuffling gait
- Walk with broad based gait

**Tx:** Anti-parkinson drugs
- Levadopa
- Amantidine
- Carvedopa
- Eldepryl
- Comtan

**Ae:** Confusion, Depression, Sleep Alteration
Musculoskeletal Drugs

1. Herniated Intervertebrae
   a. Muscle Relaxants
      i. AE: Drowsiness /Sedation
         1. Soma
         2. Baclofen
         3. Flexeril
         4. VALX – (antialytics)
   b. Steroids “Sone”
   c. Pain Meds
      i. ASA (Aspirin)
      ii. NSAIDS
      iii. Narcotics

2. Osteoporosis
   a. Teaching ABCDEFGH
      i. Alcohol
      ii. Bone density
      iii. Calcium
      iv. D - Vitamin D
      v. Exercise
      vi. FACEC
      vii. Gain Weight
   b. Drugs
      i. Fosamax – take with full glass of H2O.
      ii. Actonel
      iii. Calcitonin
      iv. Evista
      v. Calcium Carbonate
      vi. HRT ex Premarin
   c. If patient is at risk for Osteoporosis then take these medications
      i. Dilantin
      ii. Heparin
      iii. Lasix
      iv. Steroids
      v. Synthroid

3. Osteoarthritis Meds
   a. NSAIDS
      i. Feldene
      ii. Ibuprofen
      iii. Indomethacin
      iv. Naproxen
   b. Aspirin
   c. Steroids
   d. Muscle Relaxants
4. **Gouty Arthritis**  
   a. Drugs  
      i. Colchicine  
      ii. Allopurinol  
   b. AE:  
      i. Vomiting  
      ii. Anorexia  
   c. Paget’s Disease / Osteitis Deformus  
      i. Fosamax  
      ii. Actonel  
      iii. Calcitonin  
5. **Fibromyalgia**  
   a. Antidepressants  
6. **SLE (Systemic Lupus Erythematosus) Meds**  
   a. Darvocet  
   b. Tylenol 3  
   c. Oxycodone  
   d. Fentanyl  
7. **Scleroderma**  
   a. Penicillamine  
   b. Azathioprine  
   c. Methotrexate  
8. **Polyarthritis Diodosa**  
   a. Steroids ‘Sone”  
9. **Rheumatoid Arthritis**  
   a. Sedimentation Rate is ↑  
   b. Tx  
      i. Gold Salts  
      ii. Monitor for Blood Dyscrasia – check CBC.
Endocrine Drugs

1. **Growth Hormone**
   a. Somotropin

2. **Drugs for Hyperthyroidism**
   a. PTU (Propyl thiouracil) = blood dyscrasia
   b. Tapazole
   c. Beta Blockers (↓HR)
      i. Propanolol
   d. Sedatives - VALX
   e. KISS
      i. K – Potassium
      ii. Iodine
      iii. Saline
      iv. Solution - Lugol’s Solution

3. **Drugs for hypothyroidism**
   a. Synthroid (Livothyroxin)
   b. Cytomel (Liothyronine T3)

4. **Parathyroidectomy**
   a. Calcium Gluconate at beside

5. **Addison’s Disease**
   a. Prednisone
   b. Deltisone
   c. Dexamethasone
   d. Fluticasone
   e. Hydrocortisone
   f. Meythylprednisone

Other Names

a. Corticosteroids
b. Glucocorticoids
c. ACH Hormones
d. Mineral Corticoids – contraindicated in patients with PUD (Peptic Ulcer Disease)
   /GI irritant.

6. **Cushing’s Disease – Diuretics**
   a. Potassium sparring
      i. Spironolactone
      ii. Amiloride
      iii. Triamterene
Gastrointestinal -GI

1. **Upper and Lower GI Series**
   a. Laxatives

2. **EGD, ERCP**
   a. Xylocaine Spray

3. **Colonoscopy**
   a. Laxative - Golytely (Mix 4L tap H₂O with 1 glass every hour)

4. **Cholecystography**
   a. Iapanoic tabs (6 telepaque tabs. 1 tab q 5 min with full glass of water)

5. **Liver Biopsy**
   a. PASTALA

6. **Drugs for peptic ulcer disease (PUD)**
   a. Antacids – (Maalox /TUMS)
   b. H₂ Blockers end in “tidine”
      i. Ramitidine
      ii. Cemetidine
      iii. Famitidine
      iv. Mizatidine
   c. Proton Pump Inhibitors (AE: VAND + Headache) end in “Prazole” PPI
      i. Pantaprazole
      ii. Omeprazole
      iii. Lansoprazole
      iv. Esomeprazole
   d. Proton Inhibitor PI
      i. Cytotec (Mysoprostol) – can cause abortion.
   e. Sucralfate (carafate) coats lining.
   f. Reglan (metoclopramide) – 30 min AC.

7. **Drugs for Ulcerative Colitis**
   a. Steroids
   b. Albumen
   c. Antidiarrheal (Lomotil, Immodium)

8. **Drugs for Hemorrhoids**
   a. Colace
   b. Metamucil – Drink with a full glass of water and follow up with another.
   c. Senokot

9. **Cholecystitis**
   a. Demerol (Avoid MS)
10. Liver Cirrhosis
   a. Vit K
   b. Portal Systemic Encephalpathy
      i. Neomycin Sulfate
      ii. Lactulose
      iii. Aldactone
      iv. Vitamin K
      v. Anti Pruritic (Benedryl)
      vi. Neomycin
      vii. Anti-emetics
      viii. Vitamin Supplements
      ix. Antacids

   Avoid PASTALAN and Sedatives / Narcotics

   a. Antacids
   b. H<sub>2</sub> Blockers
   c. PPI
   d. Prostiglandin Inhibitors PGI
   e. Demerol

12. Complications / Seizures
   a. Sedation / Anti-seizure
      i. Phenobarbitol – sedation / anti-seizure
      ii. Anti-anxiety
      iii. Mg MSO<sub>4</sub>
      iv. B<sub>1</sub> Thiamine
   b. Pancreatic Enzymes
      i. Viokase
      ii. Pancrease

13. Hepatitis Vaccination
   a. Immunoglobulin
H2 Blockers ↓ HCL → Never take it together with Iron (Fe), antibiotics, antacids, give 2 hrs apart.

1. Zantac
2. Tagamet
3. Axid
4. Pepcid

PPI ↓ HCL

AE: VAND + Headache: coats lining of stomach (Sucralfate, Carafate). End with “Prazole”.

1. Pantoprazole
2. Omezprazole
3. Lansoprazole
4. Esomeprazole

Contraindicated in PUD

1. NSAIDS – could cause ↑ bleeding
   a. Feldene
   b. Naprexyn
   c. Endomethacin
   d. Ibuprofen
2. Anti-coagulants
3. Steroids
4. Thermolytics

Antacids Neutralize HCL, take 1-2 hours after meals

1. Maalox – never take together with Fe Antibiotics
2. Tums – H2 blocker, give 2 hours apart.

Prostaglandins: Cytotec (Mysoprostol) can cause abortion.
**Vitamin B₁₂**

B₁₂ (Cyanocobalamin) treats both Pernicious Anemia, Megaloblastic Anemia

Patient with total gastrectomy are at risk for ↓ B₁₂ and anemia.

Give B₁₂ injection IM q wk for 1 month then monthly for life.

Dx: Schilling Test

A Schilling test may be given in two parts. Part one measures the amount of vitamin B₁₂ passed in urine after a known amount of the vitamin tagged with a radioactive substance is swallowed. If the intestines absorb vitamin B₁₂ normally, a certain amount of the vitamin (up to 25% of the amount swallowed) will be passed in the urine. If the intestines cannot absorb the vitamin normally, very little or no vitamin B₁₂ will be present in the urine.

A Schilling test with abnormal results (no vitamin B₁₂ in the urine) may be repeated after giving an oral dose of intrinsic factor and radioactive B₁₂. This is called part two of the test, and it tells whether the vitamin deficiency is caused by a lack of intrinsic factor or from a problem with the intestines.

**Why It Is Done**

The Schilling test is done to:

Determine the cause of a low level of vitamin B₁₂.

Check for vitamin B₁₂ deficiency anemia in people at high risk for developing this anemia, such as those who have had stomach or intestinal surgery, small intestine problems, or people with a family history of this anemia.

Help diagnose pernicious anemia, a serious blood disease caused by a lack of intrinsic factor.
Risk Factors for Colorectal Cancer

1. ↑ in age over 40.
2. Family Hx of polyps
3. Previous colon cancer diagnosis
4. Hx of IBS (Irritable Bowel Syndrome)
5. Increase fat, protein, and ETOH intake. No Beef.

PUD / Gastric Ulcer Disease – is aggravated by food.
Sx: weight loss, patient eats small frequent meals

DUO / Duodenal Ulcer – food relieves pain.
Sx: Gain weight, pain at night.

Gerd and Hiatal Hernia – minimize liquid intake, no eating or drinking 2 hours before bedtime, decrease fat intake, increase fiber, avoid tobacco, caffeine, carbonated beverages. No tight close, elevate HOB 6-8 inches (don’t lie down after eating.)
Colon

**Ascending Colon:**
Ileostomy – liquid stools, no irrigation needed.

**Transverse Colon:**
Semi-formed stool

**Descending Colon:**
Colonoscopy / sigmoid colon
Formed Stool
Give Yogurt

**Dumping syndrome** – physiologic response to rapid emptying of gastric contents into the jejunum. Occurs in patients who have had partial gastrectomy and gastrojejunostomy.

Sx:

- Nausea
- Weakness
- Sweating
- Palpitations
- Tachycardia
- Syncope
- Diarrhea

**Preventing Dumping Syndrome in Tube Feeding**

1. Slow the formula rate to provide time for the carbohydrates and electrolytes to be diluted.
2. Administer feedings at room temperature.
3. Continuous drip if tolerated instead of bolus feeding.
4. Semi-Fowlers position for 1 hour after feeding.
5. Flush with minimal amount of water possible before and after the feeding.
Diverticulitis

**Diverticulosis** – multiple outpouching of the lining of the bowel that extends through a defect in the muscle layer and are without inflammation or symptoms.

**Diverticulitis** – when food and bacteria are retained in the outpouchings and cause inflammation or infection and impede drainage and lead to perforation or abscess formation.

**Skip Lesions** – if present then it is Crohn’s Disease and not Diverticulitis.

**Asterixis** – abnormal muscle tremor consisting of involuntary muscle movements in the hands and sometimes the feet and tongue. Usually found in patients with liver disease.

**Portal HTN** – increased pressure in the portal vein caused by blockage of blood flow through the liver. Portal HTN is found in diseases such as cirrhosis, which is causes ascites, splenomegaly, and verices.

**Hepatic Encephalopathy** – liver cannot process protein and causes ammonia levels to rise.
## Suction Chamber

PLEUR-EVAC has 3 chambers

<table>
<thead>
<tr>
<th>TO WALL</th>
<th>Suction Chamber</th>
<th>Water Seal Chamber</th>
<th>Drainage Chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H₂O Should bubble constantly. If it is not bubbling then the lung has re-expanded (good).</td>
<td>10 – 20 cm H₂O that fluctuates with respirations. If it is not fluctuating or tidalizing then the lung has re-expanded (good). Not expected: constant bubbling (air leak).</td>
<td>Mark at beginning of shift. Should be filling up (more at end of shift than at beginning). 100mL/hr. Serosanginous drainage. Do not empty, when it is full you replace the whole unit.</td>
</tr>
</tbody>
</table>

Need to have a vaso-occlusive dressing at the bedside. It is usually a vaseline gauze dressing. If tube is dislodged from patient, cover it with vaseline gauze and call Dr. If tube is dislodged from wall. Put it in sterile H₂O to clean it before reconnecting it.

If water is not fluctuating and bubbling then the lung has re-expanded. Keep patient in semi-fowlers position to permit air and H₂O in the pleural space.
EENT Drugs

1. Eye Disorders
   a. Cataract
      i. Mydriatics (dilators)
         1. Atropine sulfate
      ii. Colace
   b. Glaucoma
      i. Miotics (Constricts Pupil)
         1. Pilocarpine (outflow of aqueous humor)
      ii. Carbonic Anhydrase Inhibitor
         1. Diamox (↓ Production of AH)
      iii. Beta Blocker
         1. Timola (↓ IOP ↓ Production of AH)
      iv. Xalatan (latanoprost ↓ IOP) – take once a day ↑ outflow of AH.

Avoid: Anticholinergics, Nasal Decongestants, Anti-histamines.

2. Ear Disorders:
   a. Meniere’s Disease
      i. Antivert (meclizine)

Avoid: Ototoxic drugs like aminoglycosides “Nycin”, Lasix, Aspirin.

3. Nose Disorders
   a. Allergic Rhinitis
      i. Loratidine
      ii. Allegra
      iii. Steroids
   b. Epistaxis – Epistaxis

Derma

4. Burns
   a. Silver Nitrate
   b. Marfedine (sulfamylon)

5. Decubitus Ulcers
   a. Dressing
      i. Hydrocolloid
      ii. Hydrophilic (duodenal)

6. Cancer
   a. Chemotherapy
      i. Antiemetic
         1. Zofran (odansetron)
      ii. Multiple Myeloma
         1. Allopurinol
**EYES**

Cataract – Opacity of lens.

Assessment:
- Blurred vision
- Decreased Color
- Persistent vision is better in dim light.

Tx:
- Mydriatics / Dilate Eye
- Cataract Surgery on one eye at a time.

Glaucoma – it is a medical emergency. Cannot be repaired can only be slowed.

- Tonometer 10-20 normal.
- ↑ IOP because of decreased drainage of aqueous humor.
- Increased production of aqueous humor.

Assessment:
- Tunnel vision
- Loss of peripheral vision (Can see center objects, cannot see outside of periphery).
- Halo’s in bright light
- Vision is worse in the afternoon.

Tx:
- Miotics - Constrict

Retinal Detachment – Layer of retina separates

Assessment:
- See floaters, flashes of light, curtains being drawn. Loss of portion of visual field.

Tx:
- Patch both eyes, Bed rest, Decrease IOP, Do not sneeze cough or strain to upset the eye.
Penetrating objects of the eye – Cover eye and go to E.R.

Chemical burn of eye – flush with water for 15-20 min.
**Cardiac Medications**

1. **Stress Test – Physical / Chemical**
   a. Persantine
   b. Adenosine
   c. Dobutamine

2. **Cardiac Arrythmias / Dysrhythmias**
   a. If symptomatic give the following and check K⁺.
      i. Atropine
      ii. Digoxin
      iii. Anticoagulants (FATCHILDAP)
      iv. Beta-Adrenergic Agonist

Atropine, Digoxin, Anticoagulants, and Beta-Adrenergic Agonist are contraindicated in BPH and Glaucoma

   b. Amiodarone (Cordarone) – v tach, PVC’s, V-fib.

3. **CAD (Coronary Artery Disease)**
   a. Anti-lipidemics “Statin” ↓ LDL, give at night.
      i. Rosovastatin
      ii. Atrovastatin
      iii. Lovastatin
      iv. Pravastatin
      v. Fluvastatin
      vi. Simvastatin

   b. Vasodilators – Nitrates ↓ BP
      i. Nitroglycerin – Patch
      ii. Nitroglycerin – Paste
      iii. Isosorbide – Mononitrate
      iv. Isosorbide – Dinitrate

   c. Anti-hypertensives – (See Neuro Drugs)

   d. Calcium channel blocker “dipine”
      i. Amlodipine
      ii. Dilitazem (cardizem)
      iii. Felodipine
      iv. Nifedipine
      v. Nicardipine

   e. Anti-coagulants (FATCHILDAP)
      i. Contraindicated in Peptic Ulcer Disease (PUD) or hx of bleeding.
4. Angina
   a. Nitroglycerine – vasodilate
   b. Beta-blocker “olol”
   c. Anti-coagulants
5. MI
   a. Tx:
      1. Morphine
      2. Oxygen
      3. Nitrates
      4. Aspirin
      5. Thrombolytics
      6. Heparinics
      7. Beta-blockers
   b. Anti-anxiety
6. Heart Failure
   a. Diuretics
   b. Digoxin
   c. Morphine Sulfate
   d. Inotropics - ↑ BP ↑ Contraction
      i. Dobutamine
      ii. Dopamine
7. Cardiogenic Shock – Cardiac Tamponade
   a. MSO₄
   b. Digoxin
   c. Inotropics (Dobutamine, Dopamine)
   d. Diuretics
   e. Vasodilators
8. Pericarditis
   a. Antibiotics
   b. Anti-inflammatory – Steroids
9. Endocarditis
   a. Antibiotics – (PCN) Penicillin
10. Valvular Disease
    a. Beta-blockers
    b. Digoxin
11. Cardiomyopathy – hospice
    a. Digoxin
    b. Lasix
    c. Diuretic
12. Raynauld’s Disease, PAD
   a. Anti-platelet
      i. Trental (Pentoxifylline)
      ii. Pletal (Cilostazol)
13. Buerger’s Disease / Thromboangitis Obliterans
   a. Peripheral Vasodilators
      i. Trental
      ii. Pletal
14. AAA
   a. Anti-hypertensives
   b. Anti-coagulants
15. Hypertensive Crisis ↓ BP ↑ Urinary Output, change positions slowly
   a. Nipride – wrap in dark foil
   b. Nitroglycerin IV
Anti-hypertensives – Cardiac Continued – Will cause ↓ BP, dizziness, lightheadedness, syncope.

1. Alpha Adrenergic “Zosin”
   a. Doxazosin
   b. Prazosin
   c. Terazosin
2. ACE Inhibitors “Pril” (angiotensin Converting enzyme inhibitors). Low K⁺, check creatinine, persistent cough.
   a. Catopril (Capoten)
   b. Benzepril (Lotensin)
   c. Enalapril (Vasotec)
   d. Fosinopril (Monopril)
   e. Lisinopril (Prinivil / Zesteril)
   f. Quinapril (Accupril)
   g. Ramipril (Altace)
3. ARB (Angiotensin Receptor Blocker) “sartan”
   a. Valsartan
   b. Olmesartan
   c. Candisartan
   d. Losartan
4. Beta Blocker “olol” ↓ Heart Rate
   a. Metoprolol
   b. Acebutolol
   c. Labetalol
   d. Atenolol
   e. Nadolol (Corgard)
   f. Timolol
   g. Sotalol
   h. Carvedilol (Coreg)
   i. Propranolol
5. Calcium Channel Blockers “Dipines”
   a. Amlodipine (Norvase)
   b. Diltiazem (Cardizem)
   c. Felodipine (Plendil)
   d. Nifedipene (Procardia)
   e. Nicardipine (Cardene)
   f. Verapamil (SE: Constipation)
6. Diuretics
   a. Loop ↑ urinary output (eat banana’s oranges, cantaloupe)
      i. Bumetanide (Bumex)

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ii. Furosemide (Lasix)
iii. Torsenanimide (Demadex)

b. Osmotic (tx: cerebral edema; check BP and K⁺)
   i. Mannitol (Osmitrol)

c. Carbonic Anhydrase Inhibitor
   i. Acetazoleamide (Diamox); Tx: IOP, Glaucoma

d. Potassium Sparing
   i. Spironolactone (Aldactone)
   ii. Amiloride
   iii. Triamterene

e. Thiazides – Assess for sulfa allergy
   i. Chlorothiazide (Diuril)
   ii. Hydrochlorothiazide (Hydrodiuril)

f. Zaroxolyn (Metolazone) causes ↓ SOB

7. Sympatholytics
   a. Clonidine (Catapress)
   b. Methyldopa (Aldomet)
   c. Hydrolizene

8. Peripheral Vasodilators & Anti-platelet
   a. Trental (Pentoxifylline)
   b. Pletal (Cilostazol) ↑ microcirculation and tissue perfusion; antiplatelet.
Source of Vitamins – Vitamin Enriched Foods

1. Vitamin B1 = Thiamin = Energy
   a. Thiamin is given to:
      i. Diabetics
      ii. Alcoholics
   b. Foods Rich in Thiamin
      i. Tomatoes
      ii. Tuna
      iii. Eggplant
      iv. Asparagus
      v. Mushrooms
      vi. Sunflower
      vii. Spinach
      viii. Romaine Lettuce
      ix. Green Peas
      x. Brussel Sprouts
      xi. Pork
      xii. Nuts
      xiii. Whole Grain
      xiv. Legumes

2. Vitamin B6 (Pyridoxine) – given to patients with TB specifically taking Inh because of peripheral neuropathy or neuritis.
   a. Meat
   b. Poultry
   c. Fish
   d. Corn
   e. Yeast

   a. Whole Brown Rice
   b. Wheat Germ
   c. Legumes
   d. Egg Yolk
   e. Sprouted Seeds
   f. Cauliflower
   g. Fruits
   h. Nuts

4. Vitamin B9 = Folic Acid; given to
   a. Prenatal Moms to prevent neural tube defects
   b. Sickle Cell Anemia patients
   c. Hemophiliacs

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5. Vitamin B12 (Cobalamin) – Given to patients that undergo gastrectomy. IM for life.
   a. Liver
   b. Organ Meats
   c. Poultry
   d. Dried Beans
   e. Egg Yolk
   f. Brewers Yeast
   g. Milk
   h. Nuts
   i. Green Leafy Vegetables
   j. Citrus Fruits

6. Billroth I / Gastroduodenostomy – Anastomosis of the upper portion of the stomach to the duodenum.

7. Billroth II / Gastroduodenostomy – A connection usually constructed surgically between the stomach and the jejunum.
Diabetic Medications

1. Alpha glucoside inhibitors – delays absorption of carbohydrates & digestion.
   a. Glycel (Milgital) – take with milk
   b. Acarbose Milgital – take with meals or first bite.
2. Biguanides ↓ Promote insulin
   a. Glucophage (Metformin) – take with meals BID. Hold 48 hours prior to angiogram and surgery (Risk for metabolic acidosis)
      i. Check Creatinine
      ii. AE: VAND
3. Sulfonylurent – take once a day; no alcohol (Disulfiram like reaction if ETOH)
   a. Glyburide
   b. Amaryl
   c. Glipizide
4. Thiazoline diones - ↓ insulin resistance in muscle
   a. Actose – hepatoxic
   b. Avandia (Golitazam)
5. Meglitinides
   a. Prandin – 1-30 mins before meals
Calcium & Magnesium

1. Hypocalcemia and Hypomagnesemia both have - 3T’s  
   a. Tetany  
   b. Trousselau’s Sign (BP cuff)  
   c. Chvostek’s Sign (twitches)
2. Hypercalcemia Symptoms (normal 8.5 – 10)  
   a. Bone pain  
   b. Back/ Joint/ Flank  
   c. Constipation  
   d. Renal Stones  
   e. Fractures
3. Hypomagnesemia  
   a. Tall T-waves  
   b. Tachycardia  
   c. Hypertension  
   d. Decreased bowel sounds  
   e. Anorexia  
   f. Shallow respirations  
   g. twitching
4. Hypermagnesemia (normal 1.6 – 2.6)  
   a. Neurological depression  
   b. Drowsiness – Lethargy  
   c. Loss of Deep Tendon Reflex  
   d. Respiratory Insufficiency  
   e. Bradycardia  
   f. Hypotension
5. Magnesium Toxicity – (Greater than 2.6)  
   a. Blood pressure < 90/60  
   b. Urine Output < 30 mL/hr  
   c. Respiratory Rate < 12 min  
   d. Reflex (O +/-) Deep Tendon Reflex  
   e. Pulmonary Edema (Crackles with fever)
Drugs and their Antidotes

1. Acetaminophen - Acetylcysteine
2. Benzodiazepine - Flumazenil
3. Coumadin - Vitamin K
4. Curare - Tensilon
5. Cyanide poisoning - Methylene Blue
6. Digitalis - Digibind
7. Ethylene poisoning - Antizol
8. Heparin - Protamine Sulfate
9. Iron - Desferal
10. Lead - Edetate Disodium (EDTA), Dimercaprol (BAL), Succimer (CHEMET)
11. Lovenox - Protamin Sulfate
12. Magnesium sulfate - Calcium Gluconate
13. Morphine sulfate - Naloxone Hydrochloride
14. Methotrexate - Leucovorine
15. Mestinon - Atropine Sulfate
16. Neostigmine - Pralidoxime Chloride (PAM)
17. Penicillin - Epinephrine
Drugs which are best TAKEN ON AN EMPTY STOMACH

1. Ampicin (Ampicillin)
2. Chloromycetin
3. Erythrocin
4. Ferrous Sulfate
5. Inh
6. Isordil
7. Penicillin
8. Rifadin

Drugs which are best TAKEN BEFORE MEALS

1. Atropine Sulfate
2. Bactrim
3. Dalmane
4. Insulin
5. Mestinon
6. Valium

Drugs which are best TAKEN AFTER MEALS

1. Artane (trihexyphenidyl HCl)
2.Cogentin
3. Clozaril
4. Deltasone
5. Elavil
6. Haldol
7. Lithium
8. MAOI
9. Nardil
10. Pyridium
11. Ritalin
12. Streptomycin
13. Thorazine
14. Tofranil
Normal Lab Values

<table>
<thead>
<tr>
<th>Lab Test</th>
<th>Value</th>
<th>Low Meaning</th>
<th>High Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid Phosphatase</td>
<td>11 - 60 U/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkaline Phosphatase</td>
<td>30 – 85 ImU/mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonia Level</td>
<td>15 -110 ug./dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amylase</td>
<td>56 – 190</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-streptolysin O (ASO) Titer</td>
<td>≤ 160 Todd Units /mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arterial oxygen pressure (PaO₂)</td>
<td>80-100 mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicarbonate (Plasma)</td>
<td>22 -26 mEq/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilirubin direct</td>
<td>0 – 0.3 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilirubin Indirect</td>
<td>0.1 – 1 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilirubin Total</td>
<td>&lt; 1.5 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bleeding time</td>
<td>1-9 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Urea Nitrogen (BUN)</td>
<td>10 – 20 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>9 – 10.5 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloride (Cl)</td>
<td>90 – 110 mEq /L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol Level</td>
<td>&lt; 200 mg /L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cortisol level</td>
<td>8am 6 -28 ug/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creatinine</td>
<td>0.5 – 1.5 mg /dL</td>
<td></td>
<td>Muscle Damage</td>
</tr>
<tr>
<td>Creatinine phosphokinase (CPK)</td>
<td>Male: 12–70 U/mL, Female: 10–55 U/mL</td>
<td></td>
<td>Renal Disease</td>
</tr>
<tr>
<td>Erythrocyte Sedimentation Rate (ESR)</td>
<td>Male: &lt; 15 mm/hr, Female: &lt; 20 mm/hr</td>
<td>Decreased RBC’s,</td>
<td>Sickel Cell</td>
</tr>
<tr>
<td>Folate</td>
<td>5-20 ug/mL</td>
<td>Liver Disease</td>
<td>Pernicious Anemia</td>
</tr>
<tr>
<td>Glucose level (GTT)</td>
<td>70 – 115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hematocrit (Hct)</td>
<td>Male: &lt; 47%, Female: &lt; 42%</td>
<td>Anemia</td>
<td>Poicythemia</td>
</tr>
<tr>
<td>Hepatitis B surface antigen (HBsAg)</td>
<td>Negative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Density Lippoprotein</td>
<td>&gt; 40 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Growth Hormone (HGH)</td>
<td>Male: &lt; 5 ug/L, Female: &lt; 10 ug/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunoglobulin E (Ig E)</td>
<td>&lt; .55 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunoglobulin M (Ig M)</td>
<td>55-375 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketosteroids</td>
<td>Male: 7-25 mg /24hr, Female: 4-15 mg/24hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDH</td>
<td>45 -90 U/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value Range</td>
<td>Abnormalities</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>&lt; 20 ug/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Density Lipoprotein (LDL)</td>
<td>&lt; 100 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myoglobin</td>
<td>0 – 85 ng/mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td>1.6 – 2.6</td>
<td>Hypotension</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hypertension, loss of deep tendon reflex</td>
<td></td>
</tr>
<tr>
<td>Oxygen saturation of arterial blood (SaO₂)</td>
<td>95-98%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial Thromboplastin Time (Coumadin)</td>
<td>60-70 seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCO₂</td>
<td>35-45 mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Hydrogen (ph, blood)</td>
<td>7.35-7.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenylalanine level</td>
<td>&lt; 2 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td>3 – 4.5 mg /dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platelet Count</td>
<td>150,000 – 450,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium (K⁺)</td>
<td>3.5-5.0 mEq/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein (Urine)</td>
<td>6.8-8.3 g/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prothrombin Time (PT)</td>
<td>Male: 4.7 – 6.1 M/cu</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female: 4.2 – 5.4 M/cu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium (Blood)</td>
<td>135 – 145 mEq/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGOT/AST</td>
<td>10–50 IU/L or 8-20 U/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGPT/ALT</td>
<td>5-35 IU/L or 8-20 U/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3 (Triiodo Thryonine)</td>
<td>75-220 ng/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4 (Thyroxine)</td>
<td>4-11 ug/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Troponin</td>
<td>&lt; 0.6 ng/mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine Osmolality</td>
<td>50 -1400 mOsm/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine Specific Gravity</td>
<td>1.005 – 1.025</td>
<td>Edema, overhydration</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dehydration</td>
<td></td>
</tr>
<tr>
<td>Uric Acid Level</td>
<td>250 – 750 ml/24hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Blood Cells (WBC)</td>
<td>5,000 – 10,000</td>
<td>Immunosuppressed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Infection</td>
<td></td>
</tr>
</tbody>
</table>
Adrenal Disorders

Addison’s Disease and Cushing’s Syndrome / Disease

Addison’s Disease

Addison’s disease is failure of the adrenal glands to produce sufficient amount of steroids. The body does not make enough glucocorticoids and mineralcorticoids. This is caused by tuberculosis, cytomegalovirus, and histoplasmosis. Addisonian Crisis is caused by (S.I.T.S.) Stress, Infection, Trauma, and Surgery. Assessment: headache, severe abdominal, leg and lower back pain, generalized weakness, irritability and confusion, severe hypotension, shock.

TX: Corticosteroids like Prenisone

DX: Cosyntropin Stimulation Test is used to confirm Addison’s Disease.

Cushing’s Syndrome / Disease

Cushings Syndrome is a result of excessive glucocorticoid exposure. Usually as a result of pharmacological treatment of RAD or arthritis. Cushing’s Disease is caused by pituitary or adrenal adenomas or excessive production of ACTH (adrenal corticotropic hormone).

SX: Moon Face, weight gain, DM symptoms polydipsia, polyphagia, and polyuria because glucocorticoids oppose the action of insulin.

TX: Reduce the amount of steroid or administer every other day. Perform surgery to remove the responsible adenoma. Diet ↑ protein and potassium ↓ calories, carbohydrates, and sodium.
Pituitary Disorders – Diabetes Insipidus and Syndrome of Inappropriate Anti-diuretic Hormone

**DI – Diabetes Insipidus**

DI is caused by failure of the posterior pituitary to secrete ADH. It is treated with synthetic vasopressin. It is usually caused by hypothalamic injury (brain trauma or neurosurgery) or by drugs (lithium or demeclocycline). This results in polyuria that is caused by either inadequate amount of ADH (hypothalamic DI) or failure of the kidneys to respond to ADH (nephritic DI). Urine is dilute and between 5-10 liters per day. Urine specific gravity is below 1.005.

P.U.S.H up ↑ (Plasma Osmolarity, Urine Output, Serum Sodium, Hematocrit) = Dehydration.

**SIADH – Syndrome of Inappropriate Anti-diuretic Hormone**

Syndrome of increased ADH activity despite of reduced plasma osmolarity. Usually indicated by hyponatremia and it is associated with disorders of the central nervous system, various tumors, anxiety, pain, pneumonia, and drugs.

P.U.S.H. down ↓ (Plasma Osmolarity, Urine Output, Serum Sodium, Hematocrit) = Overhydration.
Arterial Blood Gases

<table>
<thead>
<tr>
<th>ABG Chart</th>
<th>Uncompensated</th>
<th>NORMAL RANGE</th>
<th>Compensated</th>
<th>Uncompensated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Acidosis (acid)</td>
<td>Normal pH</td>
<td>Alkalosis (base)</td>
</tr>
<tr>
<td>pH</td>
<td>Acidosis</td>
<td>7.35</td>
<td>7.40</td>
<td>7.45</td>
</tr>
<tr>
<td>PC02 (Respiratory)</td>
<td>Acidosis</td>
<td>45</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>HC03 (Metabolic)</td>
<td>Acidosis</td>
<td>21-24</td>
<td>-</td>
<td>25-28</td>
</tr>
</tbody>
</table>

The pH determines the first name of either (compensated or uncompensated) and the last name of either (acidosis, or alkalosis).

The PC02 and HCO3 determine the middle name of either (respiratory or metabolic). If the PC02 name matches the pH last name then it is Respiratory. If the HCO3 name matches the pH last name then it is Metabolic.

If the pH is normal range then it is Complete Compensation.

If pH is not normal and either the PC02 or HCO3 are normal range then there is NO Compensation.

Practice:

pH of 7.18, PC02 of 68, and HC03 of 25 = Uncompensated Respiratory Acidosis.

pH of 7.51, PC02 of 40, and HC03 of 30 = Uncompensated Metabolic Alkalosis

pH of 7.18, PC02 of 85, and HC03 of 24 = Uncompensated Respiratory Acidosis

pH of 7.36, PC02 of 49, and HC03 of 28 = Compensated Respiratory Acidosis

pH of 7.19, PC02 of 82, and HC03 of 10 = Respiratory and Metabolic Acidosis (Mixed Acidosis because both PC02 and HC03 names match the pH last name).

Common Causes:

**Respiratory Acidosis**
Due to respiratory depression (drugs, CNS trauma), pulmonary disease (pneumonia COPD), respiratory hyperventilation.

**Respiratory Alkalosis**
Due to hyperventilation (emotions, pain).

**Metabolic Acidosis**
Due to diabetes, shock, renal failure, intestinal fistula, Diarrhea (ASSidosis).

**Metabolic Alkalosis**
Due to sodium bicarbonate overdose (TUMS, antacids), prolonged vomiting, nasogastric drainage.

When pt is intubated PaCO2 should be 50 or greater and PaO2 should be less than 50.
Fetal Monitoring

1. Description
   a. The fetal monitor displays the fetal heart rate (FHR).
   b. The device monitors uterine activity.
   c. The monitor assesses frequency, duration, and intensity of contractions.
   d. The monitor assesses FHR in relation to maternal contractions.
   e. Baseline FHR is measured between contractions; the normal FHR at term is 120 to 160 beats per minute.

2. External Fetal Monitoring
   a. External fetal monitoring is noninvasive and is performed using a tocotransducer or Doppler ultrasonic transducer.
   b. Perform Leopold’s maneuvers to determine on which side the fetal back is located, and place the ultrasound transducer over this area (fasten with a belt).
   c. Place the tocotransducer over the fundus of the uterus where contractions feel the strongest (fasten with a belt).
   d. Allow the client to assume a comfortable position, avoiding vena cava compression.

3. Internal Fetal Monitoring
   a. Internal fetal monitoring is invasive and requires rupturing of the membranes and attaching and electrode to the presenting part of the fetus.
   b. Mother must be dilated 2 to 3 cm to perform internal monitoring.

4. Periodic patterns in the FHR
   a. Fetal bradycardia and tachycardia
      i. Bradycardia: The FHR is less than 120 beats per minutes for 10 minutes or more.
      ii. Tachycardia: The FHR is greater than 160 beats per minute for 10 minutes or more.
      iii. Change position of the mother and administer oxygen.
      iv. Notify the physician.
   b. Variability
      i. Absent variability: undetected variability.
      ii. Minimal variability: greater than undetected but not more than 5 beats per minute.
      iii. Moderate variability: fetal heart rate fluctuations from 6 to 25 beats per minute.
      iv. Marked variability: fetal heart rate fluctuations greater than 25 beats per minute.
      v. Fluctuations in the baseline FHR may include irregular fluctuations of 2 cycles per minute or greater.
      vi. Decreased variability can result from fetal hypoxemia, acidosis, or certain medications.
      vii. A temporary decrease in variability can occur when the fetus is in a sleep state (sleep states do not usually last longer than 30 minutes).
   c. Accelerations
      i. Accelerations are brief, temporary increases in the FHR of at least 15 beats greater than the baseline and lasting at least 15 seconds.
ii. Accelerations usually are a reassuring sign, reflecting a responsive, nonacidotic fetus.
iii. Accelerations usually occur with fetal movement.
iv. Accelerations may be nonperiodic (having no relation to contractions) or periodic.
v. Accelerations may occur with uterine contractions, vaginal examinations, or mild cord compression, or when the fetus is in a breech presentation.
d. Early decelerations
i. Early decelerations are decreases in FHR below baseline; the rate at the lowest point of the deceleration usually remains greater than 100 beats per minute.
ii. Early decelerations occur during contractions as the fetal head is pressed against the woman’s pelvis or soft tissues, such as the cervix, and return to the baseline FHR by the end of the contraction.
iii. Tracing shows a uniform shape and mirror image of uterine contractions.
iv. Early decelerations are not associated with fetal compromise and require no intervention.
e. Late decelerations
i. Late decelerations are nonreassuring patterns that reflect impaired placental exchange or uteroplacental insufficiency.
ii. The patterns look similar to early deceleration but begin well after the contraction begins and return to baseline after the contraction ends.
iii. The degree of fall in the heart rate from baseline is not related to the amount of uteroplacental insufficiency.
iv. Interventions include improving placental blood flow and fetal oxygenation.
f. Variable decelerations
i. Variable decelerations are caused by conditions that restrict flow through the umbilical cord.
ii. Variable decelerations do not have the uniform appearance of early and late decelerations.
iii. Their shape, duration, and degree of fall below baseline heart rate are variable; they fall and rise abruptly with the onset and relief of cord compression.
iv. Variable decelerations also may be nonperiodic, occurring at time unrelated to contractions.
v. One considers baseline rate and variability when evaluating variable decelerations.
vi. Variable decelerations are significant when the FHR repeatedly decreases to less than 70 beats per minute and persist at that level for at least 60 seconds before returning to the baseline.
g. Hypertonic uterine activity
i. Assessment of uterine activity includes frequency, duration, intensity of the contractions, and uterine resting tone.
ii. The uterus should relax between contractions for 60 seconds or longer.
iii. Uterine contraction intensity is about 50 to 75 mm Hg (with the intrauterine uterine catheter) during labor and may reach 110 mm Hg with pushing during the second stage.
iv. The average resting tone is 5 to 15 mm Hg.
v. In hypertonic uterine activity the uterine resting tone between contractions is high, reducing uterine blood flow and decreasing fetal oxygen supply.
h. Interventions for nonreassuring patterns
   i. Identify the cause (assess for cord prolapsed).
   ii. Discontinue oxytocin (pitocin) if infusing as prescribed.
   iii. Change the mothers position (avoid the supine position for patterns associated with cord compression).
   iv. Administer oxygen by face mask a 8 to 10L per minute.
   v. Increase intravenous (IV) fluids as prescribed.
   vi. Notify the physician or nurse midwife as soon as possible.
   vii. Prepare to initiate continuous electronic fetal monitoring with internal devices if not contraindicated.
   viii. Prepare to obtain a fetal scalp pH monitor to determine a blood pH value.
   ix. Prepare for cesarean delivery if necessary.
i. Nonreassuring Patterns
   i. Tachycardia
   ii. Bradycardia
   iii. Decreased or absent variability
   iv. Late decelerations
   v. Variable decelerations falling to less than 70 beats per minutes for longer than 60 seconds.
   vi. Prolonged decelerations
   vii. Hypertonic uterine activity
Stages of Labor

1. **Stage 1** – Stage 1 is cervical dilation from 0 – 10 cm in three phases: latent, active, and transition.
   a. **Latent Phase**
      i. Cervical dilation is 1 to 4 cm.
      ii. Uterine contractions occur every 15 to 30 minutes and are 15 to 30 seconds in duration and of mild intensity.
      iii. Offer fluids and ice chips
      iv. Encourage voiding every 1 to 2 hours.
   b. **Active Phase**
      i. Cervical dilation is 4 to 7 cm.
      ii. Uterine contractions occur every 3 to 5 minutes and are 30 to 60 seconds in duration and of moderate intensity.
      iii. Encourage maintenance of effective breathing patterns.
      iv. Promote comfort with backrubs, sacral pressure, pillow support, and position changes.
      v. Offer fluids and ice chips
      vi. Encourage voiding every 1 to 2 hours.
   c. **Transition Phase**
      i. Cervical dilation is 8 to 10 cm.
      ii. Uterine contractions occur every 2 to 3 minutes and are 45 to 90 seconds in duration and strong intensity.
      iii. Offer fluids and ice chips
      iv. Encourage voiding every 1 to 2 hours.

2. **Stage 2** – Stage 2 is from complete dilation (10cm) to birth of the baby.
   a. Cervical dilation is complete
   b. Monitor fetal and mother vital signs
   c. Assist with positioning
   d. Prepare for birth of the baby.

3. **Stage 3** – Stage 3 is delivery of the placenta to 1 hour after delivery of the baby.
   a. Placenta is delivered between 5 and 30 minutes after the birth of the baby.
   b. Shultzte mechanism: Center portion of placenta separates first, and its shiny fetal surface emerges from the vagina.
   c. Duncan mechanism: Margin of placenta separates, and the dull, red, rough maternal surface emerges from the vagina first.
   d. Assess uterine status and maternal vital signs.
   e. Following birth of the placenta, uterine fundus remains firm and is located 2 finger breadths below the umbilicus.
   f. Examine placenta for cotyledons and membranes to verify that it is intact.
   g. Assess mother for shivering and provide warmth.
   h. Promote parental-neonatal attachment.

4. **Stage 4** – Period of time from 1 – 4 hours after delivery of the baby.
   a. Blood pressure returns to prelabor level.
   b. Fundus remains contracted, in the midline, 1 to 2 fingerbreadths below the umbilicus.
   c. Lochia is moderate scant and red.
d. Perform maternal assessments every 15 minutes for 1 hour, every 30 minutes for 1 hour, and hourly for 2 hours.
e. Provide warm blankets
f. Apply ice packs to perineum.
g. Massage the uterus if needed and teach the mother to massage the uterus.
h. Provide breast-feeding support as needed.
AUTONOMIC NERVOUS SYSTEM

Consists of the Sympathetic and Parasympathetic Nerves. Both impulses control internal organs and both are regulated by impulses from the hypothalamus and other parts of the brain. Cardiac muscle, smooth muscle, and glandular epithelial tissue receive impulses only via the autonomic nervous system.

<table>
<thead>
<tr>
<th>Sympathetic (synonyms)</th>
<th>Parasympathetic (synonyms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenergic</td>
<td>Cholinergic</td>
</tr>
<tr>
<td>Sympathomimetic</td>
<td>Sympatholytic</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Antiadrenergic</td>
</tr>
<tr>
<td>Vagalytic</td>
<td>Vagametic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sympathetic</th>
<th>Parasympathetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulates</td>
<td>Stimulates most systems;</td>
<td>Inhibits most systems;</td>
</tr>
<tr>
<td></td>
<td>Inhibits GI and Urinary</td>
<td>Stimulates GI and Urinary</td>
</tr>
<tr>
<td>Main Function</td>
<td>Fight or Flight response;</td>
<td>Repair response;</td>
</tr>
<tr>
<td></td>
<td>mobilizes reserves;</td>
<td>promote vegetative</td>
</tr>
<tr>
<td></td>
<td>prepares body to meet</td>
<td>function; SLUD:</td>
</tr>
<tr>
<td></td>
<td>emergencies.</td>
<td>Salivate, Lacrimate,</td>
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<tr>
<td></td>
<td></td>
<td>Urinate, Deficate.</td>
</tr>
<tr>
<td>Secretion</td>
<td>Adrenalin</td>
<td>Acetylcholine</td>
</tr>
<tr>
<td>Eyes</td>
<td>Pupil Dilation: Mydriatic</td>
<td>Pupil constriction, Miotic;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decreases intraocular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pressure.</td>
</tr>
<tr>
<td>Saliva</td>
<td>Stops secretion</td>
<td>Stimulates secretion</td>
</tr>
<tr>
<td>Heart</td>
<td>Heart rate increases:</td>
<td>Heart rate decreases:</td>
</tr>
<tr>
<td></td>
<td>Increases SA node rate;</td>
<td>Decrease SA node rate;</td>
</tr>
<tr>
<td></td>
<td>Increases contractibility</td>
<td>Decrease contractibility.</td>
</tr>
<tr>
<td></td>
<td>Vasodilation of</td>
<td>Vasoconstriction of</td>
</tr>
<tr>
<td></td>
<td>coronary vessels. BP</td>
<td>coronary vessels. BP</td>
</tr>
<tr>
<td></td>
<td>increases.</td>
<td>decreases.</td>
</tr>
<tr>
<td>Lung</td>
<td>Bronchial tube dilation</td>
<td>Bronchial tube constriction</td>
</tr>
<tr>
<td>Stomach</td>
<td>Decrease muscle activity;</td>
<td>Increase muscle activity;</td>
</tr>
<tr>
<td></td>
<td>slows glandular secretion;</td>
<td>Increases secretion;</td>
</tr>
<tr>
<td></td>
<td>delays gastric emptying.</td>
<td>Speeds gastric emptying.</td>
</tr>
<tr>
<td>Intestine</td>
<td>Decreases paristalsis</td>
<td>Increases paristalsis</td>
</tr>
<tr>
<td>Pancreas</td>
<td>Decreases enzyme secretion</td>
<td>Increases enzyme secretion</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>-----</td>
<td>Biliary ducts stimulated</td>
</tr>
<tr>
<td>Blood sugar</td>
<td>Increases blood sugar</td>
<td>Decreases blood sugar</td>
</tr>
<tr>
<td>Liver</td>
<td>Hepatic glycogenolysis</td>
<td>-----</td>
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<tr>
<td>Kidney</td>
<td>Vasoconstriction; decrease</td>
<td>Vasodilation; Increase</td>
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<tr>
<td></td>
<td>urine output, urine</td>
<td>urine output, urine</td>
</tr>
<tr>
<td></td>
<td>retention</td>
<td>excretion</td>
</tr>
<tr>
<td>Skin</td>
<td>Vasoconstriction</td>
<td>Vasodilation</td>
</tr>
</tbody>
</table>

~ 60 ~
Dry Erase Board Contents

Addisons Graphic
Cushings Graphic
Diabetes Insipidus Graphic
SIADH Graphic
Arterial Blood Gas Graphic
Suction Chamber Graphic
Standard Precautions

Conversions

1kg = 1000g  1000mL = 1qt  1g = 15gr
1g = 1000mg  1tsp = 5mL  0.3g = 5gr
1mg = 1000mcg  1tbs = 15mL  60mg = 1gr
1mcg = 1000ng  60m = 1dr = 4mL  30mg = 1/2gr
1L = 1000mL  1fioz = 30mL  1cc = 1cc
30mL = 1oz  1mL = 16m  1cc = 1mL
240mL = 8oz = 1cup  4mL = 1dr  1kg = 2.2lbs
500mL = 1pint  1kg = 2.2lbs
100mL = 1dL  4g = 60gr

D/H x S (Desired-Dr. / what you Have x Stock) = Dosage
D/M x S (Dr's Order divided by minutes x SDF) = Gtt's per minute.