



The Pearls for NCLEX Review Course

The MOST important comprehensive resource your students need to assist them in successfully preparing for the NCLEX examination.



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Educational Concepts, LLC*



Contact us today for information about our comprehensive 3-Day NCLEX Review Course.

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THE PEARLS FOR NCLEX REVIEW COURSE

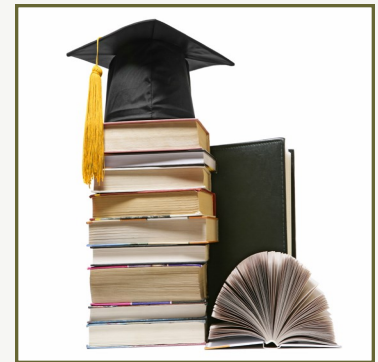
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Welcome to The Pearls for NCLEX Review Course

The Pearls for NCLEX Review is written by a long-term educator and clinician who recognizes the need to teach in ways that enhance the retention of information. The course is designed for both RN and PN students with specific content areas identified. It encompasses their entire nursing program and all the HESI and NCLEX review books and puts it into one manual of over 300 pages and presented with over 1,200 visuals to enhance the retention of the material.

The program is loaded with pathophysiology, pharmacology, lab abnormalities, diagnostics, and clinical correlation pieces. A review of the following is incorporated into this interactive seminar:

- * Test taking hints
- * Fundamental skills
- * Mental health issues
- * Pulmonary system
- * Infections in acute care
- * Acid base overview & review
- * Connective tissue disorders
- * Gastrointestinal system
- * Accessory digestive organs
- * Pediatrics
- * Laboratory testing, normal and abnormal values for each system
- * Professional development
- * Principles of nutrition
- * Endocrine system
- * Cardiovascular system
- * Renal & urological systems
- * Musculoskeletal system
- * Neurological system
- * Reproductive system
- * Maternity nursing
- * Pharmacologic principles of med administration



We invite you to preview our comprehensive review course which prepares students with test taking techniques and the knowledge to pass the NCLEX exam on their first attempt.

The following pages includes excerpts from our program and highlights some of the teaching techniques used including fill-in-the-blank, group work, diagrams, fact-filled tables, “bubble hints”, pneumonics, and memory hints.

We have also included student comments from the countless programs we have conducted to help them successfully pass their NCLEX Exam.

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Answering Priority Setting Questions

Prioritization is a key component of the exam. Students must know the order to assess patients when managing a team and they must be able to prioritize interventions. Areas reviewed include Key words, Maslow, ABCDs, triage, nursing process, and at risk patients. Numerous questions are then presented to enhance the use of these concepts.

Key Words are used frequently to make the student think “priority” and what to choose first. These may include:

- * Initial
- * Vital
- * Highest
- * Most
- * Essential
- * Immediate
- * Best
- * Priority

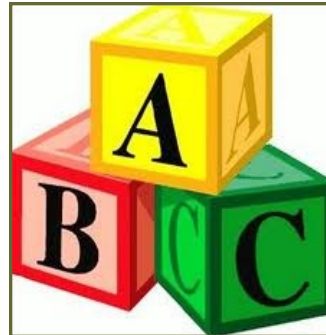
Maslow’s Hierarchy may be used to determine priority. Physiologic and safety needs must be met first.

- * Physiologic: Need for food, shelter, water, sleep, oxygen, and sexual expression.
- * Safety: Avoiding harm, having security and order, and physical safety.
- * Love and belonging: Giving and receiving affection and companionship, identification with a group, respect of others, self esteem, and success in work.
- * Self-actualization: Fulfillment of potential.



ABCD’s is frequently used to determine assessment and intervention priorities.

- * Airway
- * Breathing (and oxygen)
- * Circulation is assessed by checking:



_____ and

- * Disability is assessed by checking: _____

Student Comment: “Excellent instructor. Very knowledgeable with good tips to help remember everything and great clinical examples to reinforce knowledge.”

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Triage: Think of a stop light to determine which patients to see and treat first.

- * **Red:** Critical patient. Stop and treat them immediately.
- * **Yellow:** Could be seriously ill. Caution in assessment. Treat them in 30-60 minutes.
- * **Green:** Go ahead and move to the next patient. See in a few hours.
- * **Black:** Dead or dying.

“Treat those who are salvageable first” in triage situations.



Nursing Process to determine what to do first and how to proceed.

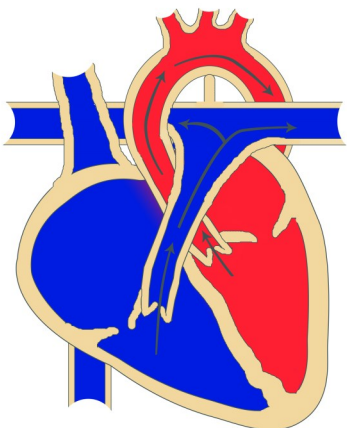


- * Assessment and data collection are priority unless the patient is critical and then an intervention may be needed.
- * Establish the nursing problem using Maslow.
- * Plan and implement interventions using ABCD.
- * Evaluate the response or outcome.
- * Notify the physician when:
 - ⇒ There is a complication or critical development
 - ⇒ They are not progressing like they should be

At Risk Patients to determine priority for assessment and interventions

- * **Procedures or injuries to vascular organs** by determining mechanism of injury, organ location and clinical manifestations demonstrated:

- * **Determining patients who are unstable** with the identification of key clinical signs:



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Diverse Teaching Strategies

Various teaching strategies are used throughout the program to enhance student involvement and comprehension to keep them engaged. All conditions and disorders are reviewed using a pathophysiologic approach with more than 1,200 visuals to assist in understanding the disease process. Bullet points and concise definitions allow for quick review and better retention of material covered.

Chronic Renal Failure: A chronic and progressive condition where renal function is lost. Those with end stage renal failure require dialysis to live. Renal failure is a GFR 15% to 29%. End-stage is GFR < 15%.

Uremia or azotemia: High BUN and creatinine levels from protein metabolism. Will be seen in end stage renal failure. Must restrict protein in these patients. GFR is the most reliable indicator of the level of protein consumption.



Lab abnormalities

___ K ⁺	___ pH and HCO ₃
___ Phosphorus	___ Sodium
___ Magnesium	___ Blood sugar
___ Calcium	___ Albumin levels
___ RBC	___ Protein in urine
___ PT, PTT	___ Uric acid

Quiz Time!

What do you remember about labs and renal failure?
Work with a partner to come up with the answers.

Clinical manifestations of renal failure are related to four pathological processes:

- ◆ Anemia
- ◆ Accumulation of waste products
- ◆ Fluid retention
- ◆ Suppression of the immune system

Think about these pathological processes and how they will manifest in your patients.

Then review the complete table included for you.

Student Comment:

*"The practice questions helped to identify tips to rule out answers. Very helpful **acronyms and pneumonics.**"*

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Clinical Manifestations of Chronic Renal Failure:

Skin changes

- * Gray-bronze or yellow skin
- * Pallor related to anemia
- * Uremic frost
- * Pruritis
- * Excoriations
- * Ecchymosis and purpura
- * Thin, brittle nails

Cardiovascular

- * Hypertension
- * Acceleration of ASHD
- * Increased risk of AMI and CVA
- * Heart failure
- * Pericarditis
- * Pericardial effusion
- * Cardiac dysrhythmias

Respiratory

- * Thick sputum, depressed cough
- * Uremic breath odor
- * Kussmaul's respirations
- * Pleural effusions
- * Increased risk of pneumonia

Reproductive

- * Impotence in men
- * Decreased libido
- * Amenorrhea
- * Infertility in women

Hematologic

- * Anemia
- * Platelet dysfunction
- * Suppressed immune system

Gastrointestinal

- * Metallic or ammonia taste and breath odor
- * Stomatitis
- * Increase dental caries
- * Anorexia
- * Increased gastric acid
- * Diarrhea or constipation
- * May develop hepatitis

Central nervous system

- * Memory problems
- * Mental clouding which may progress to confusion
- * Flat affect
- * Depression
- * Irritability
- * Stupor and coma
- * Seizures

Peripheral nervous system

- * Neuropathies
- * Loss of motor function
- * Foot drop
- * "Burning feet" syndrome

Autonomic nervous system

- * Poor blood pressure control
- * Orthostatic hypotension

Musculoskeletal

- * Impaired mobility
- * Loss of muscle mass
- * Osteomalacia
- * Osteoporosis

Student Comment:

*"The course is straight to the point and everything I needed to review is in **one resource book.**"*

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Bullet Points & Bubble Hints

Bullet points are used throughout to give students a quick and easy way to remember clinical manifestations and treatments. Bubble hints are used to provide fun ways to remember facts.

Post-Operative Complications:

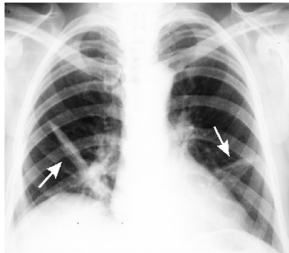
Work together with a partner and identify which conditions in the box are early and late complications.

Early complications:

Late complications

Possible Complications

Hypoxia
Pulmonary embolus
Atelectasis
Pneumonia
Hypovolemic shock
Problems with the wound
Ileus



Atelectasis is complete or partial collapse of the lung. Normal perfusion but decreased ventilation. Stasis of secretions leads to bacterial growth and pneumonia.

* Develops 24-48 hours postoperatively

Clinical Manifestations

- * Dyspnea
- * Tachypnea
- * Tachycardia
- * Fever
- * Decreased breath sounds
- * Asymmetrical chest movement
- * Increased restlessness

Interventions

- * Cough & deep breathe & incentive spirometry
- * Suction if necessary
- * Medicate for pain
- * Ambulate and frequent position changes
- * Bronchodilators

Student Comment:

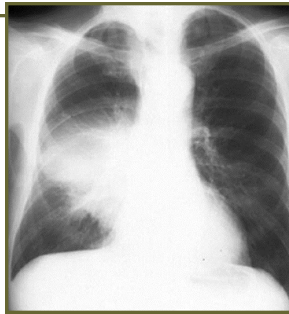
"Fantastic class! It moved along quickly with the material which is well detailed in the book. Loved the fill-in-the-blank areas to keep our attention and spontaneous group activities to change the pace of the class."

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Pneumonia

Clinical Manifestations

- Tachypnea
- Shallow respirations
- Crackles
- Productive cough
- Hypoxia
- Asymmetrical chest movement
- Fever
- Leukocytosis
- Tachycardia



Deep Vein Thrombosis

Clinical Manifestations

- Unilateral swelling
- Pain in the leg
- Possible redness



Hypovolemic Shock

Clinical Manifestations

- Tachypnea
- Tachycardia
- Weak pulse
- Cool, clammy skin
- Restless
- Decreased urine output
- Increased bleeding
- Thirst
- Decreased CVP
- Hypotension



Pulmonary Embolism

Clinical Manifestations

- Tachypnea
- Tachycardia
- Increased anxiety
- Dyspnea
- Chest pain
- Blood tinged sputum
- Diaphoresis
- Decreased orientation
- Hypotension
- ↓ CO₂ and ↑ O₂ initially on ABGs



Student Comments:

"This was an awesome class. Very knowledgeable instructor who really brought everything together for me."

"Amazing instructor! Easy to listen to and kept our (my) attention throughout the entire time!"

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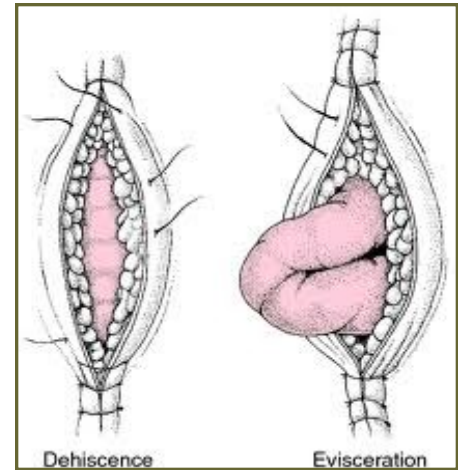
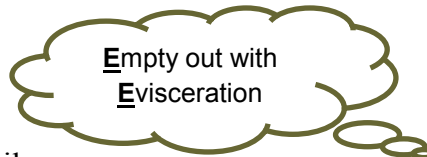
Problems with the Incision

Wound Dehiscence: Separation of incision.

Type of incision most likely: _____

Wound Evisceration: Evidence of bowel through the incision with increased pain. Those at risk include:

- * Elderly
- * Diabetic
- * Obese
- * Malnourished
- * Prolonged paralytic ileus



Wound Infection

- * Incisions will be red due to inflammation.
- * Red with purulent drainage means a local infection which is usually staph or strep.
- * Elevated WBC and fever indicates a systemic infection.

“Quick-and Dirty” Methods

Students appreciate the easy ways to remember numerous facts and conditions using “Quick & Dirty”. The hints are used for retention of information for the exam and readily transferred into the clinical environment for easy retention and application to practice.

Vital Signs in Pediatrics: In the pediatric population, respiratory and heart rates must be measured.

<u>Age (yr)</u>	<u>Resp</u>	<u>Pulse</u>
10-16	16-20	60-90
5-10	18-22	70-110
3-5	20-25	80-120
2-3	20-30	80-130
1-2	25-35	100-150
0-1	30-60	100-160

Document the child’s behavior with vital signs such as crying, febrile, or other distress. Use the table on the right to remember “ballpark” normals for the age groups:

Quick & Dirty Normals

To remember the normals, think 20, 30, 40. Then remember breaths to heart rate is 1:4.

<u>Age</u>	<u>Resp</u>	<u>Pulse</u>
Adult	20	Around 80
Child	30	Up to 120
Infant	40	Up to 160

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Acid Base Imbalances

Can use R-O-M-E for interpretation

R	=	Respiratory	pH ↑ PCO ₂ ↓	=	Respiratory Alkalosis
O	=	Opposite	pH ↓ PCO ₂ ↑	=	Respiratory Acidosis
M	=	Metabolic	pH ↑ HCO ₃ ↑	=	Metabolic Alkalosis
E	=	Equal	pH ↓ HCO ₃ ↓	=	Metabolic Acidosis

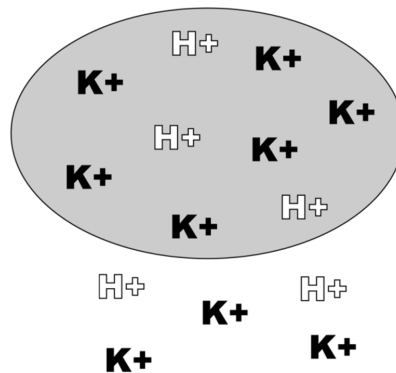
Can also use
“Quick and dirty”
for interpretation:

“If the pH and **B**icarbonate are **B**oth in the same direction, then it is a metabolic problem.”

Sample #1:

pH=7.38
PaCO₂=40
HCO₃=24

Interpretation:



Potassium effects in
acid-base imbalances

Sample #2:

pH=7.10
PaCO₂=35
HCO₃=15
PaO₂=62
O₂ Sat=70%

Interpretation:

Additional considerations:
Check the electrolytes.
Potassium will be _____

Immediate intervention:

Student Comment:

“Presented a lot of **easy ways to remember** points. **Great layout** of information and very much to the point. I will keep this material for a long time to go back and reference from and study.”

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Extensive Lab Review

A comprehensive review of labs and “need to know” values is incorporated throughout the program. Values are given in ‘ball park’ ranges to help the student remember the normals. Lab ‘tid-bits’ are given to understand relationships and how they are affected in disease conditions. Lab abnormalities with disease pathology are reinforced throughout the course.

Labs to evaluate dehydration and renal function

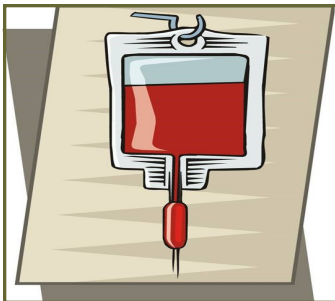


BUN: Normal is 10-20. Not a great indicator of renal function. Will be high in renal dysfunction in conjunction with the creatinine.

- Used more often to evaluate dehydration.
- Value decreased in liver dysfunction because the liver can't make BUN.

Creatinine < 1.2
BUN 10-20
BUN : Ct ratio 20:1
indicates renal failure

Creatinine < 1.2. Increases in renal failure.



Hemoglobin: 12-18 (a dozen to a dozen and a half)

Hematocrit (Hct): 36-54 (three times the hemoglobin)

Specific gravity of urine: Normal is 1.005-1.030. High values indicate dehydration. >1.020 indicates hypovolemia and need for early intervention.

Sodium: Normal is 135-145. Increases with dehydration.

Lab tid bits and rules

Na⁺ and K⁺ exchange for one another
K⁺ and H⁺ exchange for one another
Na⁺ and Cl⁻ are buddies
Ca⁺⁺ and Mg⁺ run together and HPO₄ is
opposite in the absence of disease
K⁺ runs with Ca⁺⁺ and Mg⁺

Student Comments:

*“Labs were **thoroughly covered** and then reviewed throughout the course. I have a much better understanding of them than ever before.”*
*“Thank you for the **Lab Review Card** given during the course. Very helpful for remembering the values and diagnostics.”*

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Medication Administration

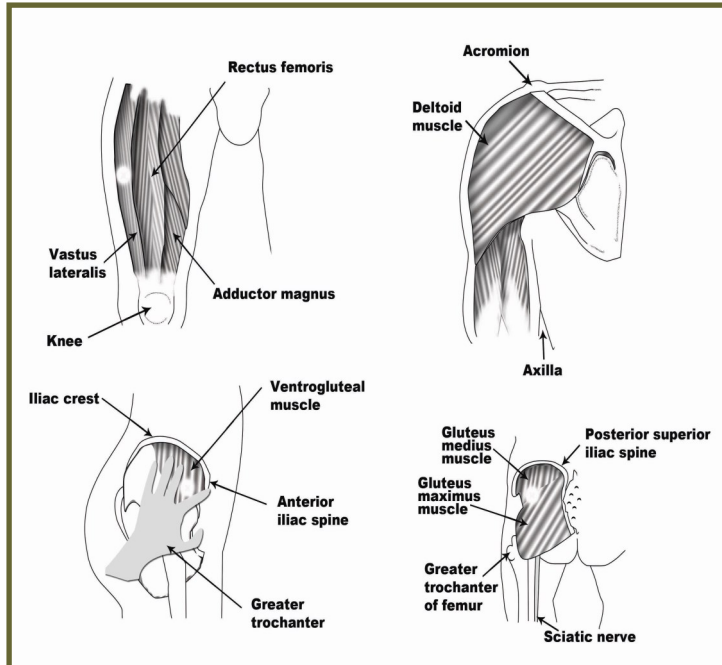
Techniques in the administration of medications are thoroughly reviewed to assist students in answering these questions. General and significant side effects for various classifications are presented along with interventions and nursing assessments.

Vastus Lateralis

- * Large muscle in adults.
- * Use in kids at any time, even < 3 years.

Ventrogluteal

- * Preferred in adults due to sciatic nerve injury with dorsogluteal
- * Use in kids > 3 years.



Deltoid

- * OK for nonirritating meds in adults.
- * Never in kids.

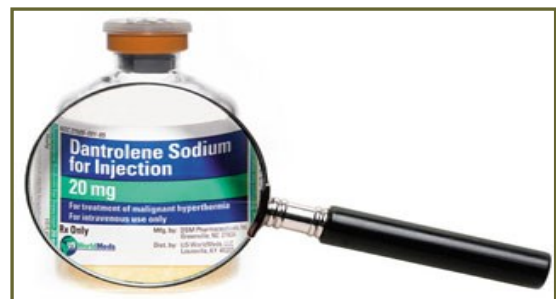
Gluteus Medius or Dorsogluteal

- * Need to roll.
- * Use in kids >6 years.
- * May cause sciatic nerve injury

Significant Side Effects with Drug Therapy

Neuroleptic malignant syndrome (NLMS)

- ◆ Fatal hyperpyrexia with temperature elevation to 108°
- ◆ Potential reaction to medications such as:
 - ⇒ Phenothiazines
 - ⇒ Cyclic antidepressants
 - ⇒ Olanzapine (Zyprexa)
 - ⇒ Overdose of haloperidol (Haldol)
- ◆ Treatment:
 - ⇒ Dantrolene (Dantrium) (Musculoskeletal relaxant)
 - ⇒ Bromocriptine (Parlodel) (Anti-Parkinson drug)



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Drug Classifications

Each classification of medication includes action, side effects, toxic effects when appropriate, targeted drugs and a complete list of medications for review. Drug therapy can also affect lab values in numerous ways and these are included with each classification. In addition, nursing considerations with administration are reviewed.

Diabetic Agents

- * Most frequently used to treat high blood sugars.
- * The drugs may prevent the body from absorbing glucose in the gastrointestinal tract, increase the ability of insulin to work, or they may help to lower the blood sugar once it is elevated.
- * Many drug interactions with these medications.
- * Some of the oral drugs can cause gastrointestinal upset such as abdominal bloating, nausea, cramping, and diarrhea.
- * Insulin pens increase accuracy of dose and are used frequently.
- * Clumping, frosting, and precipitate is a sign of damage to a vial of insulin.

Lab effects:

↑ BUN and creatinine
↑ AST, ALT, ALP, Bilirubin



Types of insulin and times:

	<u>Short acting</u>	<u>Intermediate acting</u>	<u>Basal insulin</u>
<u>Onset</u>	30 minutes	90 minutes	1-2 hours
<u>Peak</u>	2-4 hours	4-8 hours	6 hours
<u>Duration</u>	6 hours	18 hours	24 hours
	<i>Regular insulin</i>	<i>NPH</i>	<i>Lantus and Detemir</i>

Quiz Time:
In general, can you take oral drugs when pregnant?

- * Clear insulin includes regular insulin and now Lantus and Detemir. Lantus and Detemir are never mixed with any other type of insulin.

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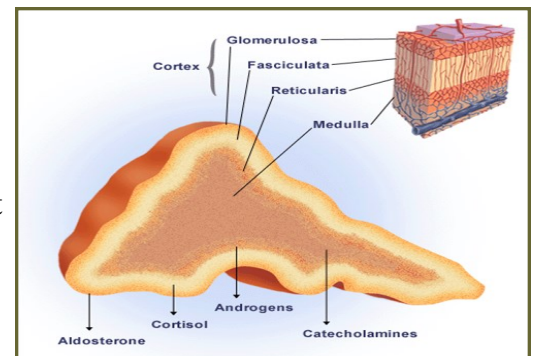
Adrenal and anti-adrenal agents

- * Used to correct abnormalities of secretion of the adrenal gland.
- * Systemic steroids can cause adrenal insufficiency if they are not gradually withdrawn.

* Side effects of steroids:

Lab effects:

↓ WBC, ↑ BS, ↑ Na⁺, ↓ K⁺



Muscle weakness
Osteoporosis
Immunosuppression
Polyuria
Polydipsia

Abnormal fat distribution
Growth retardation in children
Weight gain
Mood swings such as depression
Edema

* Medications:

Betamethasone (Celestone)
Dexamethasone (Decadron)
Cortisone (Cortone)
Fludrocortisone (Florinef)

Hydrocortisone
Methylprednisolone (Solu Medrol)
Prednisone (Deltasone)

Steroids tend to
end in -sone

Student Comments:

*“Doing the **numerous review questions**, made me think of questions in a different way.”*

*“This course helped me with the **process of elimination and prioritization** and taught me the find the correct answer.”*

*“It really helped show some **test taking techniques** and what words to look for.”*

*“**Thank you!** This course was packed full of knowledge and a great review of everything I have learned in my program. Going over the questions with the various strategies was very beneficial.”*

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Toxic Effects from Drug Therapy

Bronchodilators: Open up the airways of the respiratory system to allow for air passage into and out of the lungs. Major types include:

- ◆ **Anticholinergic agents** are taken around the clock for consistent response. They are one of the most beneficial bronchodilators in COPD.
- ◆ **Sympathomimetic agents** stimulate the sympathetic nervous system and cause SNS side effects



Restlessness Hypertension Tachycardia Shaking	Headache Nausea and vomiting Pupil dilation
--------------------------------------------------------	---------------------------------------------------



- ◆ **Xanthine derivatives** have a narrow therapeutic window. Caffeinated beverages are the same classification and can increase drug levels.

Quiz time: Do you remember the therapeutic blood level for patients on xanthine derivatives?? _____

Signs of xanthine toxicity:

Agitation Tremors Insomnia	Confusion Vomiting
----------------------------------	-----------------------

- ◆ **Medications**

<p><u>Sympathomimetic agents</u></p> <ul style="list-style-type: none"> Arformoterol (Brovana) Albuterol (Proventil, Ventolin, Volmax) Bambuterol (Bambec) Epinephrine (Adrenalin, Primatene) Formoterol (Foradil) Isoproterenol (Isuprel) Levalbuterol (Xopenex) Metaproterenol (Alupent) Pirbuterol acetate (Maxair) Salmeterol (Serevent) Terbutaline (Brethine) 	<p><u>Anticholinergics</u></p> <ul style="list-style-type: none"> Ipratropium (Atrovent) Tiotropium (Spiriva) <p><u>Xanthine derivatives</u></p> <ul style="list-style-type: none"> Aminophylline Theophylline (Theo-dur, Slo-bid, Uniphyl) <p><u>Combination agent</u></p> <ul style="list-style-type: none"> Ipratropium and albuterol (Combivent)
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Toxic Effects from Drug Therapy

Inotropic agents: Increases the force of contraction and perfusion to the organs. An increase in urine output would indicate an increased perfusion to the kidneys.

◆ Side effect is a slow heart rate. Call for heart rate: < _____ OR > _____

◆ Signs of toxicity

- * Nausea
- * Vomiting
- * Diarrhea
- * Bradycardia
- * Heart block
- * Halos in the visual field

“Starry Night”
by Van Gough

The theory is Van Gough was toxic on foxglove (the precursor to digitalis) when this picture was painted.

This is what your patients see when they are toxic on digoxin (Lanoxin).



◆ Hypokalemia and hypomagnesemia potentiate the effects of digoxin.

The patient's level could be high normal in the presence of these electrolyte imbalances and toxic rhythms and symptoms may develop.

◆ Excreted by the kidneys.

◆ Dosage must be decreased in renal dysfunction.

◆ Antidote for digoxin toxicity is digoxin immune fab (Digibind).

Lab effects:

↓ K⁺ and ↓ Mg⁺ →
↑ effects of digoxin

Student Comments

*“The **summary of each system** that incorporates pharmacology and the key points is very beneficial.”*

*“I so appreciated the **extensive pharmacology review** throughout the entire course. We had several instructors in our program and a lack of consistency. This course put it all together **and** with each body system which is extremely beneficial.”*

*“Thanks for all the helpful hints remembering **drug classifications and side effects**. I will use this book well past my exam and as I practice as a nurse.”*

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Use of Pneumonics

Pneumonics are very useful in helping students and practicing nurses remember numerous facts related to disease process, clinical manifestations, and drug therapy.

Selective Aldosterone Blockers (SABs):

Potassium sparing diuretics that work in the distal tubule of the nephron. For testing, remember the following as being potassium-sparing.ALL the rest, in general, are potassium wasting.

To remember the SABs:
“**Amy** tried to **Spy** in the distal tubule with potassium”

Amloride (Midamor)

Triamterene (Dyrenium)

Spiroⁿolactone (Aldactone)

Combination medications:

Amloride + HCTZ (Midamor)

Triamterene + HCTZ (Dyazide)

Side effects of spironolactone (Aldactone):

- * Decreased libido
- * Gynecomastia in males
- * Hirtuism in females

Hirtuism



Calcium Channel Blockers: Relax the blood vessels reducing blood pressure and improving blood flow. Some also slow down the electrical conduction in the heart and can be used to control rapid atrial dysrhythmias.

Medications:

Very = Verapamil (Calan, Isoptin, Verelan)

Nice = Nifedipine (Adalat, Procardia)

Drugs = Diltiazem (Cardiazem, Dialcor, Tiazac)

Side Effects include the 5 H's

Hypotension
Headache
Hot Flashes
Heart Block
Hard Bowel Movement

Other calcium channel blockers:

Amlodipine (Norvasc)

Felodipine (Plendil)

Nicardipine (Cardene)

Nisoldipine (Sular)

Clevidipine (Cleviprex)

Isradipine (DynaCirc)

Nimodipine (Nimotop)

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Concise Review of Content

In the course of their studies, students are presented with an abundance of information to remember about the various disease states, clinical manifestations and treatments. A concise review of all pertinent content is presented and much appreciated by students.

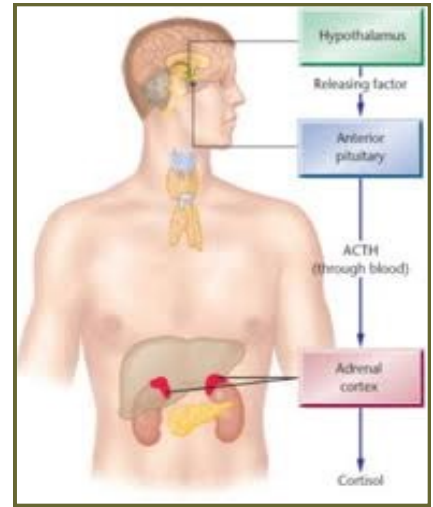
The Adrenal Gland

Adrenal medulla secretes catecholamines such as epinephrine and norepinephrine. Pheochromocytoma is the tumor which can occur in the medulla resulting in excess secretion of these chemicals.

Adrenal cortex secretes the three “S’s”.

- ◆ S _____: Cortisol
- ◆ S _____: Aldosterone
- ◆ S _____: Estrogen and testosterone

Na^+ and K^+
exchange for
one another



Lab effects:
↑ Na^+ , ↓ K^+

Disorders includes

- ⇒ **Hyperaldosteronism:** Too much salt
- ⇒ **Addison’s Disease:** Too little sugar, salt, and sex
- ⇒ **Cushing’s Syndrome:** Too much sugar, salt, and sex

Hyperaldosteronism = Secretion of too much aldosterone.

- * Also known as Conn’s disease.
- * Kidneys hold onto sodium (and water) and throw out potassium.
- * Diet: _____
- * Can be caused by an aldosteronoma which is an aldosterone-secreting adenoma of the adrenal cortex.

The “AC” of the adrenal glands are Addison’s and Cushing’s
Addison’s: “Too little” * * * Cushing’s: “Too much”

“You have **too little** before you have **too much**”



THE PEARLS FOR NCLEX REVIEW COURSE

Addison's Disease

Lab effects in Addison's

↓ Na⁺, ↑ K⁺, ↓ BS, ↑ Mg

- ◆ Not enough **sugar, salt, and sex.**
- ◆ Most commonly caused by an autoimmune process, failure to withdraw steroids, hemorrhage, and drugs such as ketoconazole (Nizoral), phenytoin (Dilantin), and rifampin (Rifadin).
- ◆ Adrenal crisis can occur and is triggered by stress or sudden withdrawal of steroids. Lose the ability to hold onto sodium and water, become hypovolemic and can go into shock and die with the crisis.

Clinical Manifestations:

Addison's Disease

- Hypoglycemia
- Postural hypotension
- Weight loss
- GI disturbances
- Diarrhea due to hyperkalemia
- Weakness from hyperkalemia
- Bronze pigmentation of skin
- Changes in distribution of body hair

Adrenal Crisis

- Profound fatigue
- Dehydration
- Vascular collapse
- Hypotension
- Renal shut down

Treatment:

- Life-long hormone replacement therapy
- Hydrocortisone IV to reverse a crisis.
- Steroid therapy such as prednisone (Deltasone)
- Aldosterone replacement if a sodium deficit with
 - * Fludrocortisones (Florinef) orally
 - * Normal saline intravenously

Helpful Hint: Any total adrenalectomy questions, treat like Addison's Disease

Student Comments:

- ◆ *"Great refresher course! Gave me easier ways to study, great hints, and areas to focus on."*
- ◆ *"I liked all the **pneumonics** to help me remember facts."*
- ◆ *"This course 'took out all the fluff' and gave me 'just the facts' so I could remember them for my exam."*
- ◆ *"One of the best lectures I have ever had. **Very thorough and easy to understand.** The power point was really good in helping to understand pathophysiology and disease process. I gained so much through this course!"*

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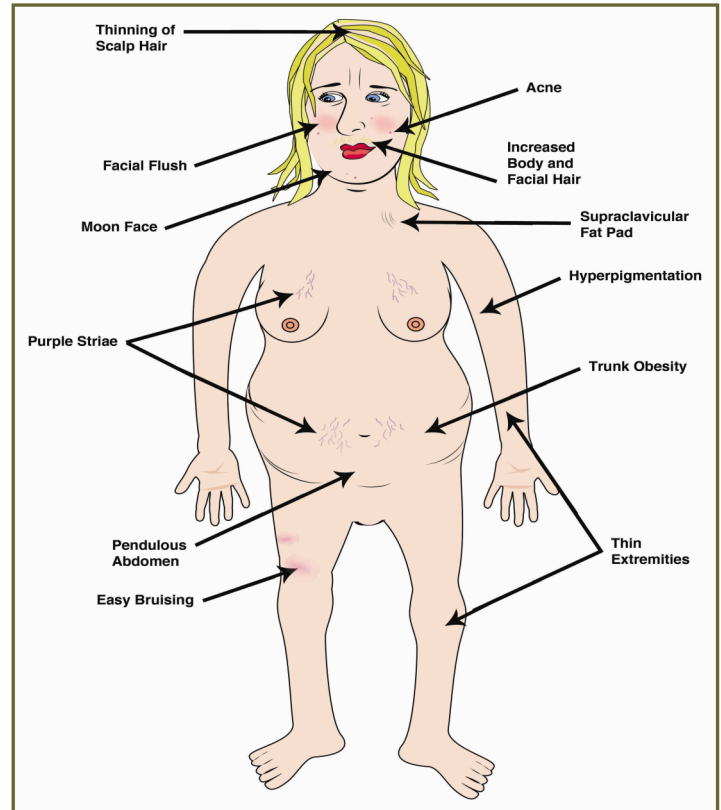
Cushing's Syndrome is too much **sugar, salt, and sex**, especially cortisol. Condition may be due to overproduction of hormones or long term use of steroids.

Clinical Manifestations:

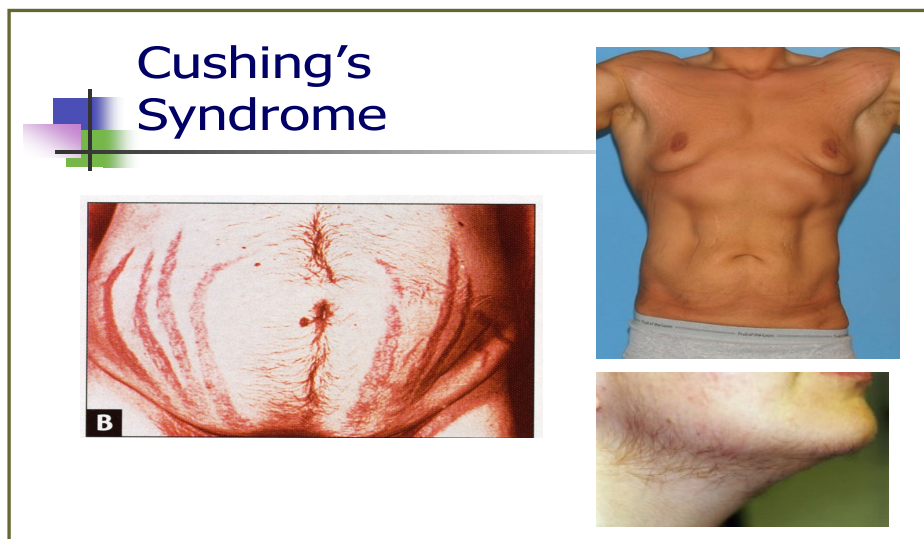
- Hyperglycemia
- ↑ risk of infection
- Fat deposits on back
- Personality changes, irritability
- Osteoporosis
- Thin extremities
- GI distress - ↑ acid
- Thin skin
- Hypertension
- Moon face
- Na⁺ and fluid retention
- Profound weakness due to hypokalemia
- Bruises and petechiae
- Purple striae
- Males: Gynecomastia
- Females: Amenorrhea and hirsutism

Lab effects in Cushing's

↑ BS, ↑ Na⁺, ↓K⁺, ↓ WBC



Sample Slide from the Program



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Comparison Tables

Numerous conditions are contrasted such as hyper and hypothyroidism, left and right-sided heart failure, and many others. Students are taught how to apply contrasting when answering many of

Thyroid Disorders

<u>Hyperthyroidism</u>	<u>Hypothyroidism</u>
<ul style="list-style-type: none">* Intolerance to heat* Insomnia* Irritability* Fine, straight hair* Exophthalmos* Facial flushing* Enlarged thyroid* Tachycardia* Increased systolic BP* Breast enlargement* Weight loss* Muscle wasting* Localized edema* Finger clubbing* Tremors* Diarrhea* Amenorrhea	<ul style="list-style-type: none">* Intolerance to cold* Lethargy* Apathy* Dry skin* Brittle nails and hair* Receding hairline and hair loss* Facial and eyelid edema* Thick tongue, slow speech* Blank expression* Muscle aches and weakness* Extreme fatigue* Anorexia with weight gain* Constipation* Menstrual disturbances <u>Late Clinical Manifestations</u> <ul style="list-style-type: none">* Subnormal temperature* Bradycardia* ↓ LOC* Thickened skin* Cardiac complications

Student Comments:

“This review has been great and very helpful in piecing together all the information. I love the fact that we were walked through the **pathophysiology** so the signs and symptoms clicked and made sense.”

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Clinical Manifestations of Diabetes

<u>Both</u>	<u>Type I</u>	<u>Type II</u>
_____	<ul style="list-style-type: none"> • Early onset before 15 yr, • Rapid onset • Insulin dependent • DKA may occur • Weight loss • Fatigue • ↑ frequency of infections • Bed wetting • Headache 	<ul style="list-style-type: none"> • Late onset usually after 40 yr • Slow onset • Meds, exercise, diet • DKA not common • HHNK may occur • Weight gain prior to diagnosis • Eye problems

Loose weight and muscle mass when blood sugar not regulated.

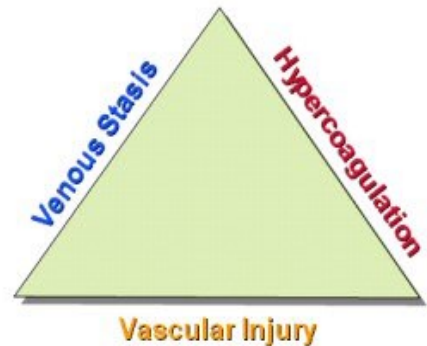
Embolic Conditions

- ◆ Emboli from various origins
 - * Deep vein thrombosis
 - * Long bone or pelvic fracture
 - * Atria in atrial fibrillation or atrial flutter.
- ◆ Recognition of predisposition with Virchow's triad.
- ◆ Treatment includes activity restrictions, anticoagulants, and in some situations, thrombolytics or surgical embolectomy
- ◆ Clinical manifestations include:

Lab effects:

↑ pH, ↓ pO₂, ↓ pCO₂

Virchow's Triad



Pulmonary embolus

Chest pain
Dyspnea
Hemoptysis
Tachycardia
Fever

Fat embolus

Hypoxemia
Confusion
Fever
Upper chest petechiae

Embolic stroke

Sudden onset
Hemiparesis
Visual field deficits
Behavior changes

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Assessment Findings & Techniques

Important assessment techniques and findings are reinforced for each body system and important pathological conditions. This assists the student in recognizing pathophysiology and needed interventions for the questions they will be given.

Assessment of Lung sounds

Listen with the diaphragm of the stethoscope.

Bronchial: Heard over the trachea. If over the periphery means consolidation and pneumonia.

Bronchovesicular: Heard over the main bronchi.

Vesicular: Normal breath sounds heard over the periphery.

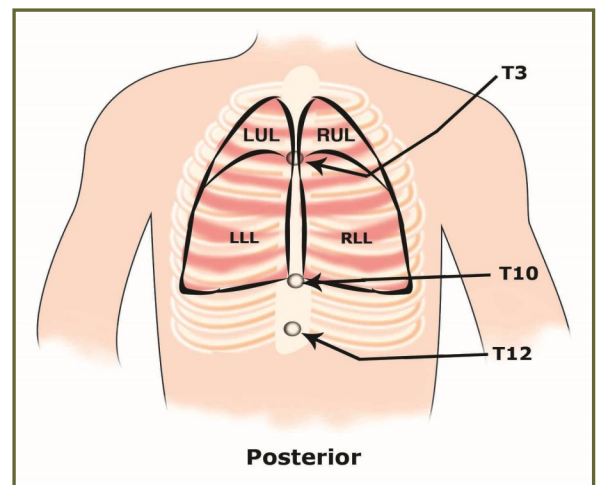
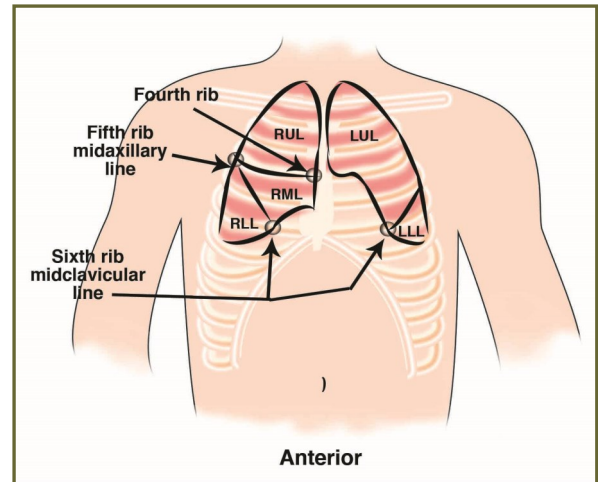
Crackles: Hear with heart failure.

Rhonchi or gurgles: Moist sounds that clear with coughing. Usually indicates a need for suctioning

Stridor: Assess by listening over the trachea.

Wheezing: Indicates air moving through narrow air passages.

Pleural friction rub: Heard early in pleurisy.



Breath sounds stop at T-10 with end expiration

Student Comment:

"This has thoroughly helped me pull everything together! Very informative and very helpful! I learned so many additional facts and ways to remember and correlate information."

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Assessment of Heart Tones

Aortic valve: 2nd ICS, RSB

Pulmonic valve: 2nd ICS, LSB

Tricuspid valve: 4th ICS, LSB

Mitral valve and PMI: 5th ICS, MCL

To remember:

All (Aortic) Physicians (Pulmonic)
Take (Tricuspid) Money (Mitral)

Erb's point: 3rd ICS, LSB.

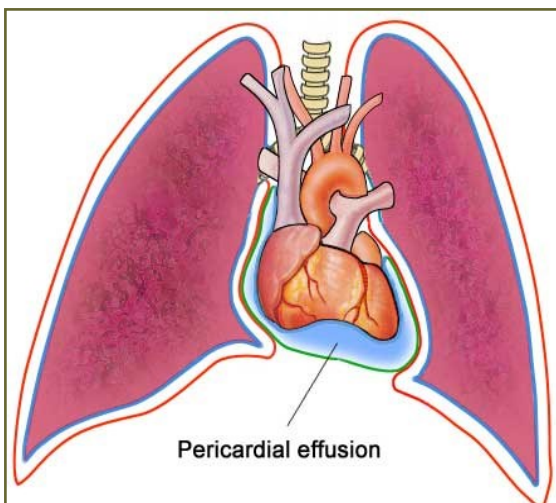
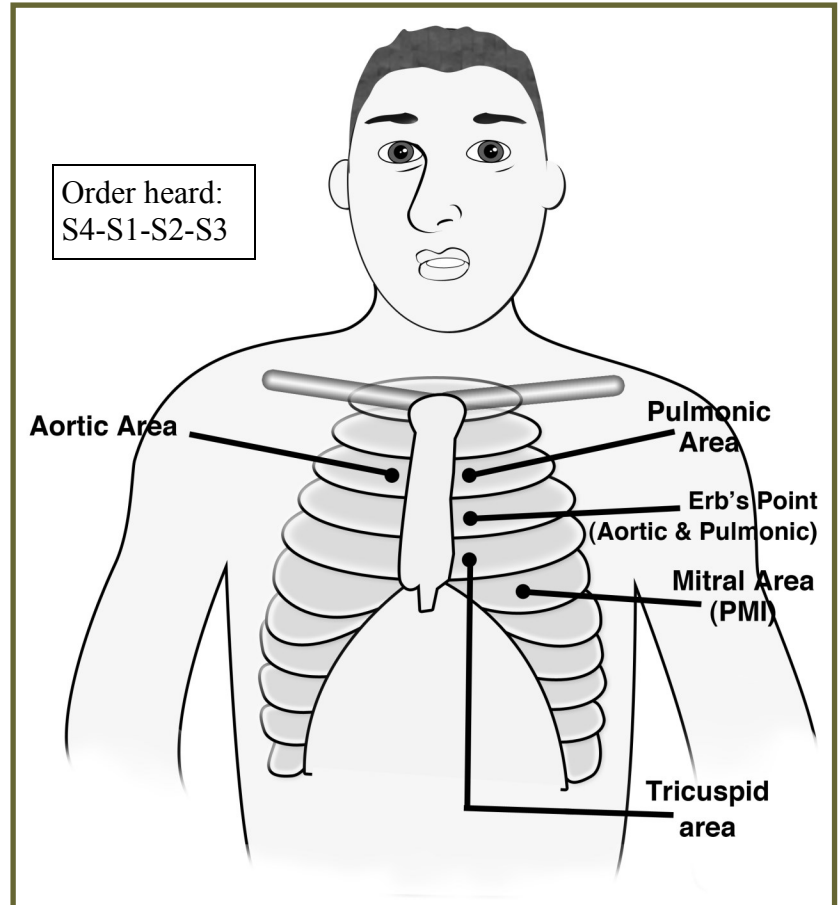
Aortic and pulmonic murmurs

S1: Mitral and tricuspid valves close

S2: Aortic and pulmonic valves close

S3: Increased filling pressure
(Heart failure)

S4: Resistance to ventricular filling
(Acute MI)



Clinical Manifestations in Pericardial Effusion

Signs & Symptoms

Hypotension
Jugular Vein Distention
Muffled Heart Tones
Tachycardia
Paradoxical Pulse

Helpful Hint:

Fluid and pressure around the heart preventing right atrial filling, leading to ↓ venous return, and ↓ cardiac output

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Rhythm Strips & Waveforms

The cardiac cycle is presented with an understanding of the various waveforms and important rhythm which can be tested. Important aspects of assessment and treatment of the rhythms are included. ECG rhythm changes are also incorporated with electrolyte imbalances.

Rhythm Strip Interpretation

P wave is the first part of the beat. It signifies the atria have contracted. If there are no P waves, the problem is with the SA node.

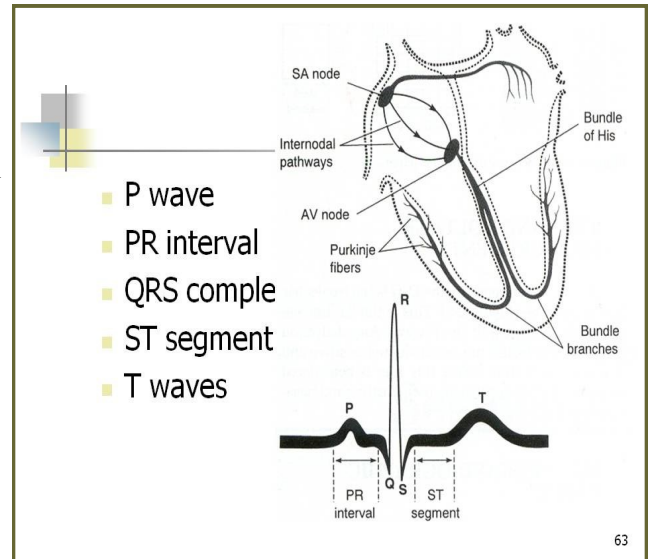
The **PR interval** is from the beginning of the P wave to the beginning of the QRS complex. If they talk about heart blocks, the problem is in the AV node.
PR interval = 0.14-0.20
PR interval > 0.20 is first degree block

The **QRS complex** is the tallest part and signifies the ventricles have contracted. Wide QRS complexes are associated with hyperkalemia.
QRS = 0.08-0.12

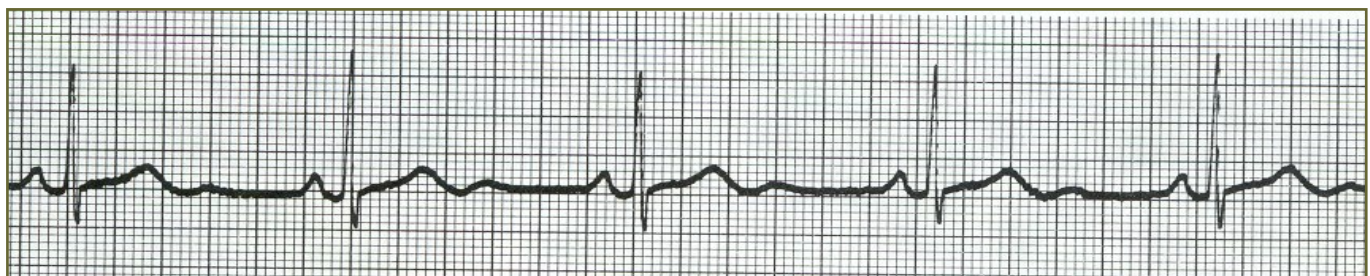
The **ST segment** is the point where the end of the QRS and the T wave join. ST segment elevation signifies ischemia over the area of the infarction.

The **T wave** signifies return to resting for the heart. Tall and peaked T waves can mean hyperkalemia. If you defibrillate on the T wave, ventricular fibrillation can result.

QT interval is from the beginning of the QRS complex until the end of the T wave. It is prolonged in bradycardia and with some medications and conditions.

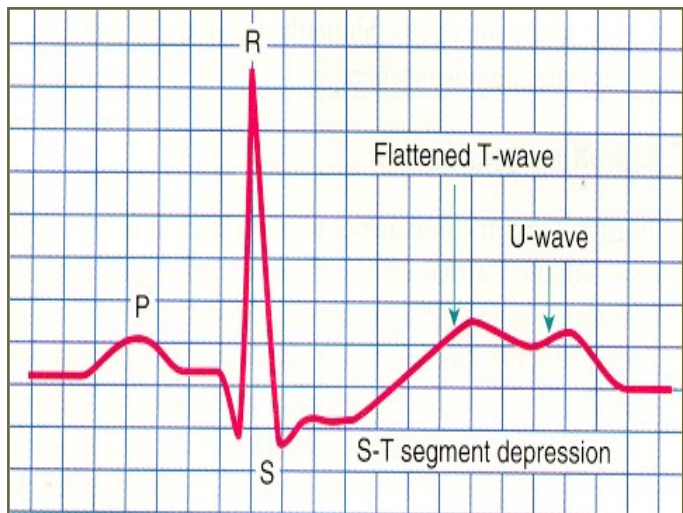


Sample Slide from the Program

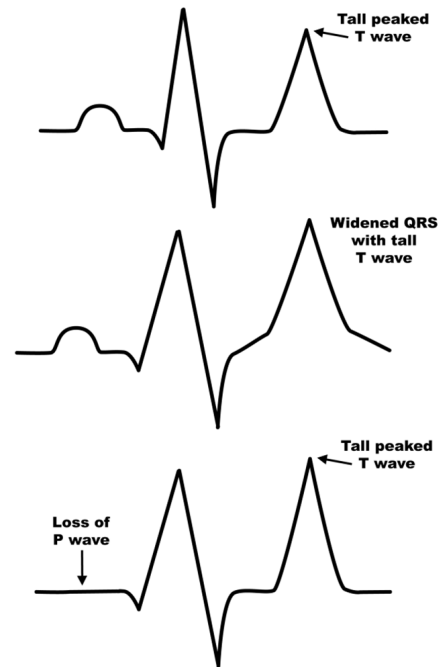


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ECG Changes Reinforced with Electrolyte Imbalances



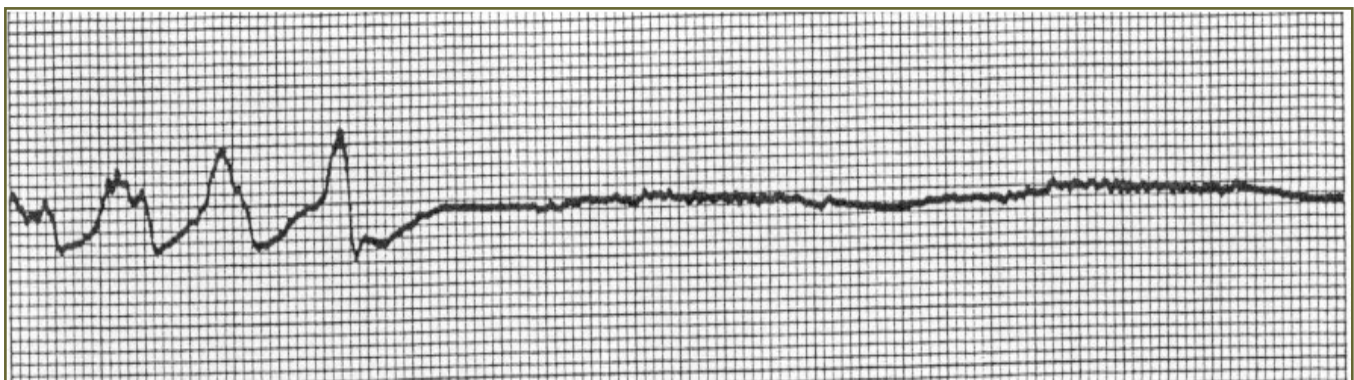
Hypokalemia



Hyperkalemia

Rhythm Strip Interpretation: Asystole

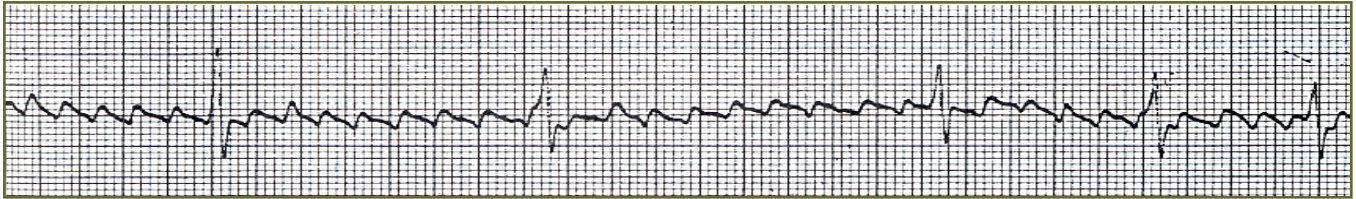
- Lack of rhythm with no QRS complexes. It may also be called cardiac standstill.
- Patients will die within 8 minutes if not corrected.
- Give epinephrine and atropine to treat the rhythm.
- May give sodium bicarbonate if prolonged.



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Rhythm Strip Interpretation: Atrial Flutter

- Saw tooth pattern of the P waves.
- Can be associated with strokes due to turbulent blood flow through the chambers and valves.
- Patients need to be on warfarin (Coumadin).
- Must use heparin when pregnant.



Rhythm Strip Interpretation: Atrial Fibrillation

- Chaotic P waves are seen. Atria quiver leading to clot formation.
- Can be associated with strokes and/or pulmonary emboli due to turbulent blood flow through the chambers and valves.
- Patients need to be on warfarin (Coumadin).
- Must use heparin when pregnant.



Rhythm Strip Interpretation: Sinus rhythm with third degree AV block

- No relationship between P waves and QRS complexes
- Treatment for heart blocks and bradycardia includes:
 - ▣ Atropine, dopamine, epinephrine
 - ▣ Transcutaneous pacemaker
 - ▣ Temporary transvenous pacemaker
 - ▣ CPR until pacing initiated
 - ▣ Stop offending drugs
 - ▣ Permanent pacemaker in some

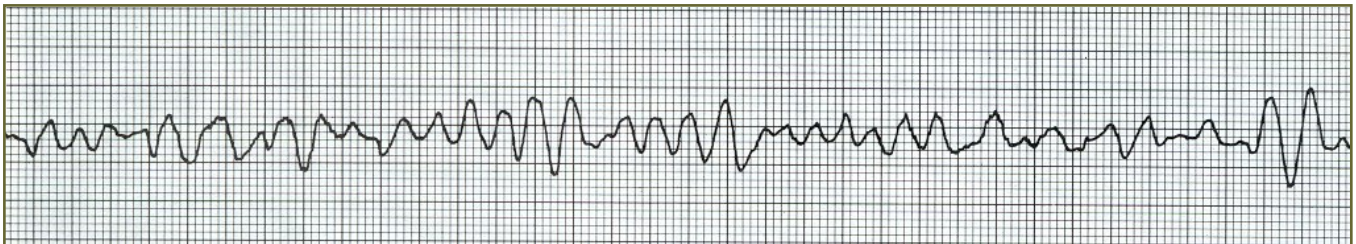


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Rhythm Strip Interpretation: Ventricular Fibrillation

- Chaotic QRS complexes.
- Lethal rhythm. Die within 8 minutes if not corrected.
- Need to defibrillate the patient.
- Implantable cardioverter defibrillator for recurrent episodes.
- Most common cause of death immediately after an acute myocardial infarction (AMI) is a dysrhythmia such as ventricular fibrillation or ventricular tachycardia.

Example of how each rhythm is covered.



Formulas & Diagrams

Important formulas and diagrams to assist in calculations are included along with many examples of how they are used in questions.

Math Formulas and Sample Problem

- $C \text{ to } F = C \times 1.8 + 32$
- 1 tsp = 5 mL
- 1 tbl = 15 mL
- 1 oz. = 30 mL
- 1 cup = 8 oz.
- 2 cup = 1 pint
- 4 cup = 1 quart = 1 liter
- 2.2 lb = 1 kilogram
- 1 inch = 2.5 cm

Math question:

Penicillin 250 mg PO every 8 hours is prescribed for a child with a respiratory infection. The child weighs 45 pounds. The safe pediatric dose is 25-50 mg/kg/day. The nurse determines that

- A. The dose is too low.
- B. The dose is too high.
- C. The dose is within the safe range.
- D. There is not enough information to determine safe dose.

IV Formula = Volume x drop factor divided by time in minutes for the infusion

Math question:

A physician prescribes heparin 25,000 units in 250 mL of normal saline to infuse at 600 units per hour. After 6 hours of heparin therapy, the patient's aPTT is sub therapeutic. The physician orders an increase in the infusion to 800 units/hour. The nurse should set the infusion pump to deliver how many mL per hour?

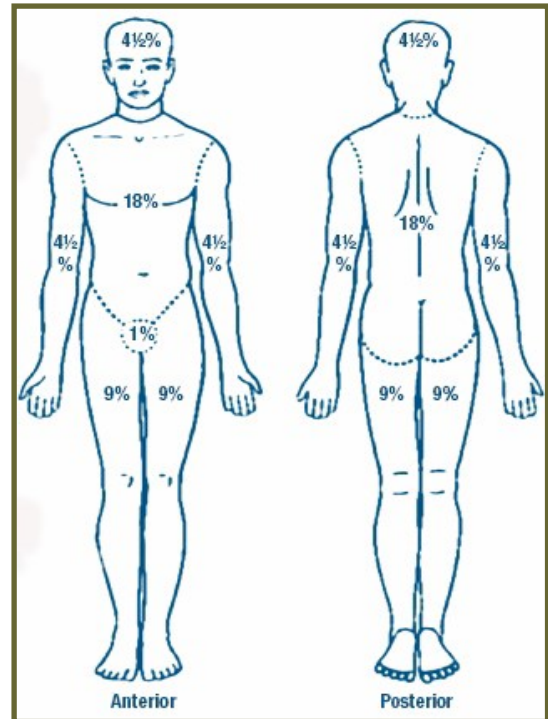
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Care of Burns: Determining surface area

- ◆ Rule of Nines (Most commonly tested)
 - ◆ Lund Browder in children but more complex
 - ◆ Rule of hands using the **patient's** hand
- * IV fluids calculated with the Parkland (Baxter) formula
- * One half of the total amount of fluid should be administered in the first 8 hours. Calculate from the time of the burn.

Example:

75 kg male with burns over 40% of his body
 $75 \text{ kg} \times 4 \text{ ml} \times 40 = 12,000 \text{ ml}$
 6,000 ml in the first eight hours
 750 ml per hour



- * Calculation: $\text{Weight} \times 4 \text{ mL/kg} \times \%$ of burned area.
- * Not uncommon to give over 500-1000 ml per hour during various phases of burn care.

Glasgow Coma Scale

Does not include pupil response and vital signs.

Maximum of 15

< 7 reflects coma state

< 5 organ donation

To calculate: (Maximum of:)

Eye = 4

Verbal = 5

Motor = 6

Assessed Behaviors	Criteria for Scoring	Scores
Eye opening	Spontaneous	4
	To verbal stimulus	3
	To pain	2
	None	1
Most appropriate verbal response	Oriented	5
	Confused	4
	Inappropriate words	3
	Incoherent	2
	None	1
Most integrated motor response	Obeys commands	6
	Localizes pain	5
	Withdraws from pain	4
	Flexion (Decorticate)	3
	Extension (Cerebrate)	2
	None	1

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Cohorting & Isolation Precautions

A thorough review of isolation precautions is needed prior to the exam. Knowledge of cohorting is also expected of the student. Bullet points are reviewed along with numerous hints on answering these frequent questions.

Contact precautions:

- Gloves only unless the health care worker is leaning over the patient or when any type of drainage could come in contact with the nurse's uniform, then a gown required.

Primarily seen:

- Major draining abscess, decubitus, or cellulitis
- C difficile
- Congenital rubella
- Acute viral conjunctivitis
- Diapered or incontinent E coli or rotavirus, shigella, hepatitis A
- Neonatal herpes simplex
- Mucocutaneous, disseminated or primary
- Impetigo
- Pediculosis (lice)
- Acute RSV in infants, children and immunocompromised
- Scabies
- Major staph or group A strep infection

Droplet precautions:

- Use a mask within 3 feet of the patient.

Primarily seen:

- H influenzae epiglottitis, meningitis, pneumonia
- Meningococcal meningitis, pneumonia, or sepsis
- Mumps and Rubella (German measles)
- Mycoplasma pneumonia and Pertussis
- Pharyngitis, pneumonia, or scarlet fever in infants and young children

Airborne precautions:

- Negative pressure room and N-95 mask
- Pulmonary tuberculosis
- Rubeola (Measles)

Airborn and contact precautions:

- Chickenpox (in the hospital). (Staff not immune should not care for the patient)
- Herpes zoster in immunocompromised patient or disseminated
- Adenovirus pneumonia
- Possibly SARS per CDC



Isolation Precautions

Student Comment

"This is a really concise overview of the most important information presented in a way that was easy to understand and to remember. Many helpful hints presented."

THE PEARLS FOR NCLEX REVIEW COURSE

About the Author

Cynthia M. Liette
MS, APRN, ACNS-BC, CCRN

Ms. Liette has been a nurse for more than 30 years. She has worked in a variety of clinical settings including intensive/coronary care, emergency room, medical-surgical units, and supervision. She currently works as a Clinical Nurse Specialist in a rural health care system. She has been an educator for practicing nurses, nursing students, and paramedics for more than 25 years while still maintaining a clinical practice. Her numerous seminars consistently receive excellent reviews from all levels of health professionals.

She holds a Master's Degree from Wright State University in the Clinical Nurse Specialist Adult Health track and is Board Certified as a Clinical Nurse Specialist. She is also an ACLS instructor and is certified in both critical care and trauma nursing.

She is owner and president of Educational Concepts, LLC. She has authored a successful pharmacology series and has taught a wide variety of subjects including Nurse Refresher and Nurse Internship programs, Critical Care courses, 12-Lead ECG and Rhythm interpretation, IV therapy, and Lab and ABG interpretation courses. She is also the author of The Pearls for Medical-Surgical Nursing Certification Review course.

She is a member of Sigma Theta Tau—National Nursing Honor Society, National Association of Clinical Nurse Specialists and the American Association of Critical Care Nurses.

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