

### Types

**Chemical splash:** from a household cleaner or another chemical

**Penetrating Object:** something gets stuck in the eye, for example pencil penetrates the eye.



### KEY POINTS

- Chemical: Continuous **eye irrigation**
- Penetrating Object:
  - **Cover BOTH** eyes = **eye shield** (2 cups)

Penetrating object **keep both eyes covered** since both eyes work in sync with each other, we cover both to prevent any eye movement.

Chemical - Continuous



**Don't let**  
**NCLEX TRICK YOU**



**DO NOT** flush the eye that has a penetrating object!

**Never remove any object** that has penetrated the body, since this can cause **MAJOR bleeding** as arteries can rupture when you pull the object out. So stabilize the **object & allow only the surgeon** or HCP to remove the impaled object, as they can provide immediate surgery if needed.

### Notes

# Abnormal Lung Sounds

## Wheezes (Whistle)

**Description:** High pitched "musical flute"  
**Location:** Entire lung (heard mainly on **exhalation**)  
**Patho:** Narrow airways "bronchoconstriction" (inflamed lung tissue)  
**Disease:** **Asthma attacks** & COPD  
**Treatment:** Asthma attack

### AIM

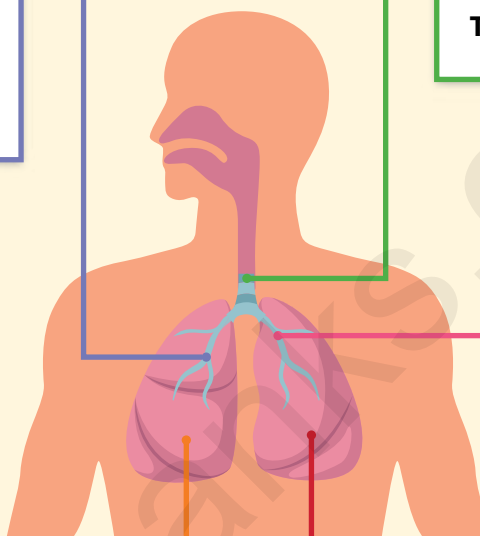
<b>A</b>	Albuterol
<b>I</b>	Ipratropium
<b>M</b>	Methylprednisolone



## Stridor "Serious Squeak!"

Med. Emergency Airway Obstruction!

**Description:** High-pitched harsh **inspiratory** whistle  
**Location:** **Throat region (during inhalation)**  
**Patho:** **Blockage** in the **larynx** (voice box) or **trachea** (windpipe)  
**Disease:** Choking obstruction, Epiglottitis, Croup (child)  
**After Thyroid Surgery** **NCLEX TIP**  
**Treatment:** Endotracheal intubation, Surgery



## Crackles (rales) "Crazy Fluid"

**Description:** liquidy bubbling or crackling

- Fine crackles = **High Pitched** (rubbing hair between fingers)
- Coarse crackles = **Low Pitched** (velcro pulled apart)

**Location:** Lower lobes (Base of lung, basillary)  
**Patho:** Alveoli "pop" open - inflammation & congestion  
**Disease:** **Pulmonary edema** "fluid in lungs" (with CHF) or Pneumonia (infection)  
**Treatment:** **Diuretics (furosemide)** Infection (antibiotics)



## Rhonchi "Rumble"

**Description:** Low pitched **rattling** or **rumbling** (like snoring)  
**Location:** **Bronchi (not alveoli)**  
**Patho:** **Mucous** secretions or obstruction  
**Disease:** **Bronchitis**, COPD, Pneumonia (infection), Cystic Fibrosis (serious mucous)  
**Treatment:** Chest percussion (vibration vest) & fluids to loosen & thin mucus



## Cheyne-Stokes "Death Rattle"

**Description:** abnormal pattern of breathing - Increase & decrease in RR - seen as Start & Stop breathing  
**Patho:** apnea (stop breathing) leading to increased CO<sub>2</sub> - Hyperventilation to blow off CO<sub>2</sub>  
**Treatment:** intubation & mech. ventilation



## Pleural Friction Rub "Pebbles Friction"

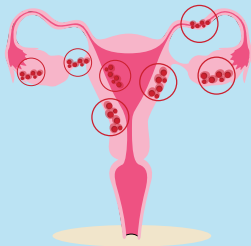
**Description:** Low pitched - **Dry rubbing** (like 2 rocks grinding)  
**Location:** **Front side of lung (during inhalation & exhalation)**  
**Patho:** **Infection** causing inflammation of pleura layer of the lungs rubbing together  
**Disease:** **Worsening pneumonia** (infection)  
**Treatment:** TCDB, Incentive Spirometer, Antibiotics

# Endometriosis & Hysterectomy

## Med Surg: Reproductive

### Endometriosis

Disorder in which there is the growth of endometrial tissues outside of the uterus. Cells making up the endometrium migrate to other parts of the body often affects fallopian tubes, ovaries, and uterine ligaments.



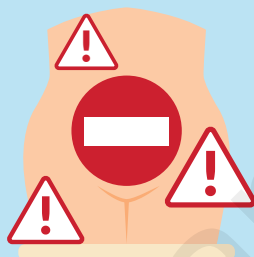
### Risk Factors

- **Family history** of endometriosis
- Early menses (period)
- Never having been pregnant



### Signs & Symptoms

- **Pelvic** pain
- Pain **during sexual intercourse**
- **Infertility** **NCLEX TIP**
- Menstrual irregularities
- Dysmenorrhea (painful menstruation)

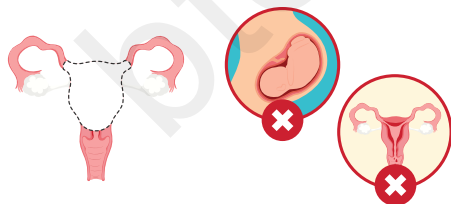


### Treatment

- Pain management
- Oral contraception (**estrogen & progesterone**)
- Surgery - Hysterectomy

### Hysterectomy

The uterus is removed, where the baby lives during pregnancy. So when the uterus is removed, clients can no longer get pregnant or have periods.

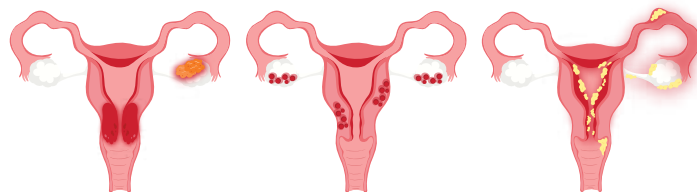


### Indication

Uterus cancer

Endometriosis

PID



### Complications

After surgery, bleeding is a priority complication!

#### Vaginal Bleeding

**NCLEX TIP**

perineal pads: "Saturated" "changed"

**More than 1** within **1 hour**



### Postoperative Care

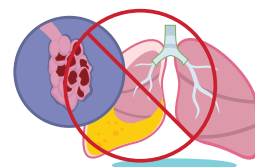
**Prevent atelectasis** - alveoli collapse

**TCDB** - turn cough & deep breathe & incentive spirometer every hour.

### HESI Question

... plan of care for a patient who has had an **abdominal hysterectomy**?

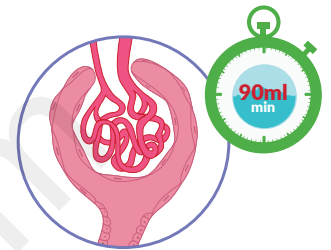
- Instruct the patient to take **deep breaths after coughing** every hour



# Renal Anatomy & Physiology

## Anatomy

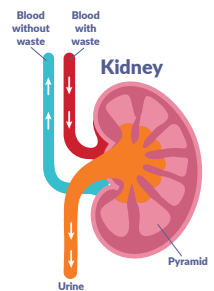
Inside the **nephron** (the functional unit of the kidney) is the **Glomeruli**, a network of small blood vessels that help to filter the blood from waste.



**GFR** - Glomerular Filtration Rate  
Over **90 ml/min** is normal

## Physiology

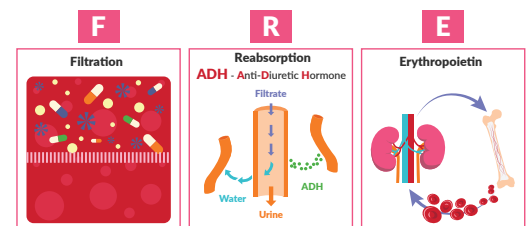
The kidneys function like 2 washer machines helping to wash the blood from waste through **Filtration**, regulating fluid volume by **Reabsorption**, and also stimulate red blood cell production by producing **Erythropoietin**.



## Memory Trick

### "FRE the PEE"

- **F** - Filtration of medications & waste
  - H - hydrogen ions (too much = High Acidity)
  - U - Urea (BUN - Blood Urea Nitrogen)
  - C - Creatinine (**Over 1.3 = Bad Kidney**)
- **R** - Reabsorption **ADH - Anti-Diuretic** Hormone  
**ADH** - Add Da H2O **Memory trick**
- **E** - Erythropoietin (stimulates RBC production in bone)



## HESI

Three phases of urine formation?

**Answer:** Filtration, reabsorption, and secretion

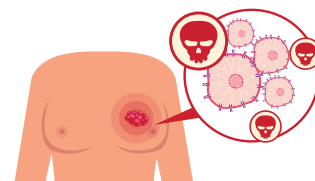
## HALF LIFE

The time it takes for half of the medication to be eliminated from the body.



### Pathophysiology

Breast cancer is the **uncontrolled growth of cells** in the breast tissue. It is deadly because the breasts are very vascular with lymph tissue & blood vessels acting like highways to the body, where **cancer can easily spread**.



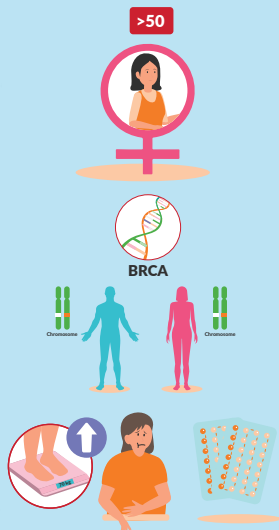
### Causes & Risks

#### NCLEX TIPS

- **Female**
- Age **over 50** (common **postmenopause**)
- **Family History:** sister / mother
- **Personal History:** ovarian / uterine cancer
- **Genetic mutations: BRCA**

#### Lifestyle Risks

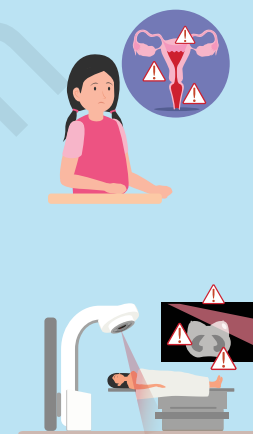
- **Weight gain & Obesity**
- **Oral contraceptives** (birth control)
  - Estrogen & Progesterone
- Diet: High fat, Low fiber
- Alcohol & Smoking



#### Saunders

Educational session ... discussing the risk factors with breast cancer. **Select all that apply.**

- **Early age menstruation**
- **Family history** of breast cancer
- High-dose **radiation** exposure to chest
- **Previous cancer** of the breast, uterus, or ovaries



### Diagnostics

Mammograms are essential for high risk patients, annually done every year. No powder lotion or perfumes.

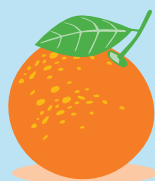
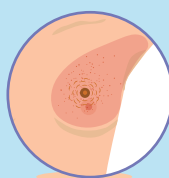


**"Just a reminder that mammogramming your breasts is more important than instagramming them."**

### Signs & Symptoms

#### Self Breast Exam Report to HCP **NCLEX TIP**

- **Red & Warm**
- **Orange peel skin**
- Pitting appearance **"small indented areas"**
- Hard **painless** swelling "immobile"
- **No pain** or discomfort (until it spreads)



#### Fibroadenoma: Benign breast disorder

- Round, **Painless, Mobile** lump

#### Fibrocystic disease: Benign

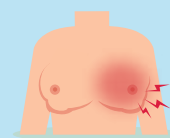
- **Nodules:** soft, mobile
- Breast changes in size during menstrual cycles

#### Key point

Malignant Cancer!

**REPORT** breast changes

**NOT RELATED** to menstrual cycle



Notes

# A.L.S.

## Amyotrophic Lateral Sclerosis

### Pathophysiology

ALS also called Lou Gehrig's disease presents as deterioration of motor neurons in the brain & spinal cord, resulting in progressive **TOTAL BODY paralysis** eventually clients die in 3 - 5 years from Respiratory Failure.



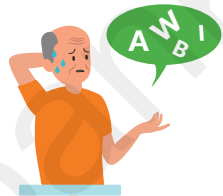
### Memory trick:

ALS think ALS like Advanced Life Support, since clients will eventually have to go on a ventilator to keep them alive.



### Signs & Symptoms:

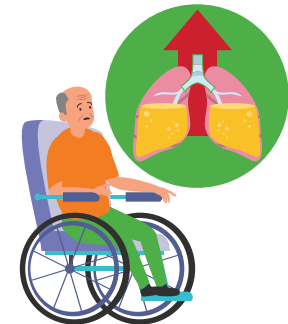
- Progressive **muscle weakness**
- Dyspnea - **Difficulty breathing**
- Dysphagia - **Difficulty swallowing HESI**
- Dysphasia - Difficulty speaking
- Constipation
- Respiratory failure **#1 Priority**



### ATI Question

Priority finding... client with ALS?

- Increased **respiratory** secretions



### Nursing Care

Infection - monitor for pneumonia

- Fever - Temp over 100.3°F
- **Lung sounds - Rhonchi**
  - Not Crackles = Pulmonary edema



### HESI Question

Expected finding with ALS?

- Limb weakness

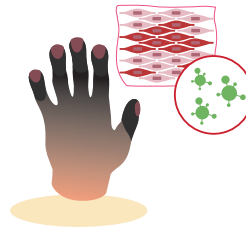
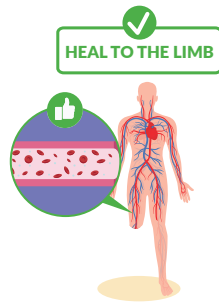


# Amputations

## Med Surg: Musculoskeletal

Amputations is where we cut off an extremity. Very common with clients who have diabetes & get bad infections from sugary blood. The most tested type of amputation is a **below the knee amputation**, since it results in better circulation & healing to the limb.

### The Most Tested



### KAPLAN

Client type 1 diabetes ... **right below-the-knee amputation** due to gangrenous toes. The client asks the nurse why the amputation is so extensive... nurse's **response** is based on which **understanding**?

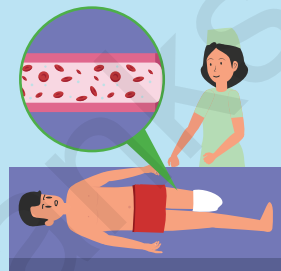
- A below-the-knee amputation results in **better circulation and healing**



### Stump Care (Residual Limb Care)

#### After Surgery

- Do **NOT** elevate limb **NCLEX TIP**
- Keep limb in **dependent position**
- Phantom limb pain



### KAPLAN

Immediately following a **right below-the-knee amputation**... the nurse is **most concerned** when **which observation** is made?

The client reports **persistent pain at the operative site**



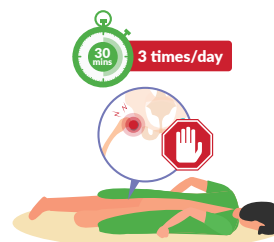
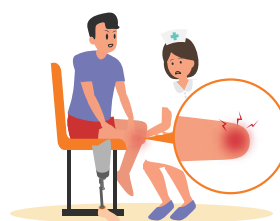
### Discharge Teaching

#### Residual limb **Daily Care** **NCLEX TIPS**

- Assess: **redness & irritation**
- **Wash limb** every day w/ **soap & water**
- **Expose to air**

#### Lay on stomach "Prone" **NCLEX TIPS**

- **30 min. x 3 times** per day
- Push stump into the bed
- Limb socks & wraps:
  - **Clean & Dry**



### KAPLAN

**Q1:** The nurse **evaluates** care given to a client after a **left below-the-knee amputation**. The nurse **intervenes** if which observation is made?

- The **dressing** to the surgical site is dated **two days prior**

**Q2:** The nurse teaches a client with a **below-the-knee amputation** to care for the **residual limb** at home. The nurse advises the client to take which action?

- Expose the **residual limb to air**

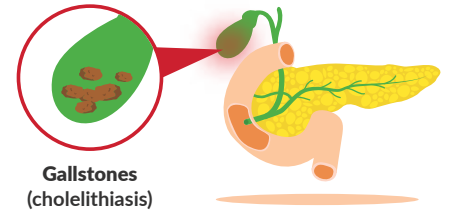
Notes

# Cholecystitis

## Med Surg: GI - Gastrointestinal

### Patho & Causes

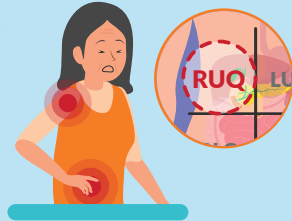
Inflammation of the gallbladder. Typically caused by gallstones also called cholelithiasis, that block the ducts leading out of the gallbladder resulting in a backup of bile which causes inflammation.



### Signs & Symptoms

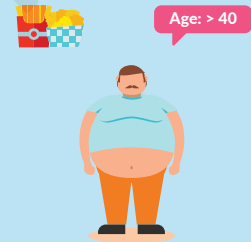
#### Highly tested

1. **RUQ pain** "radiates to the **RIGHT** shoulder"
2. **Fever** with chills
3. Tachycardia



#### Risk factors

- High fat diet
- Obesity
- Age over 40



### Priority Intervention

Nothing per oral - NO eating or drinking since eating can cause more pain & complications



### Treatment

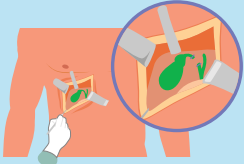
Lithotripsy - shock waves to break up the stones but if the stones are too large then we can do surgery



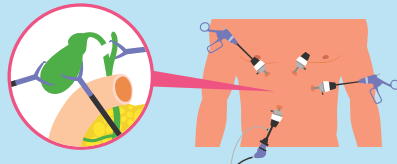
### Surgery

Cholecystectomy - surgical removal of the gallbladder.

#### Open cholecystectomy



#### Laparoscopic cholecystectomy



### HESI Question

Following a laparoscopic **cholecystectomy** ... which instructions would the nurse include?

Select all that apply.

- Take a **shower**
- Wait **1 week** after surgery before returning to work
- **Notify** the surgeon of any **redness/swelling** at the **incision sites**

### Kaplan Question

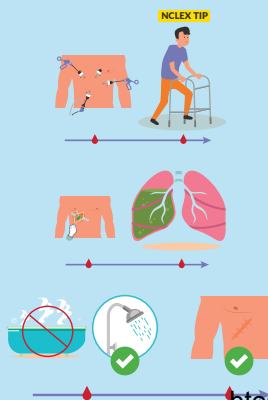
**Priority action** for a client scheduled for an open **cholecystectomy**:

- Demonstrate ways to **deep breath and cough**



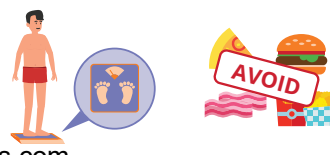
### Post Operative

- Assist with **early ambulation** **NCLEX TIP**
- Prevent Pneumonia
  - **Deep breath & Cough**
- Prevent infection **NCLEX TIP**
  - **NO baths** - shower **ONLY**
  - Report **redness/swelling** at incision site



### Patient Education

- Lose Weight
- Avoid fatty fried foods



### HESI Question

A nurse caring for a patient who recently had the **gallbladder removed** knows the patient will have **difficulties digesting** large amounts of which type of nutrients?

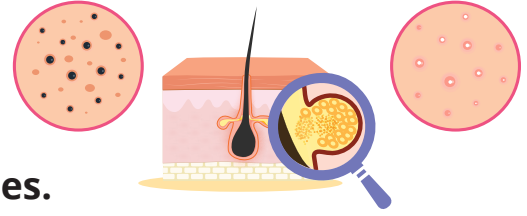
- **Fats**





### Pathophysiology

Acne is a common skin disorder where **obstructed sebaceous glands** within the skin results in blackheads & white heads. When bacteria settles in, it can cause inflammation resulting in **pustules & papules**.



### Causes & Risks

- **Puberty & pregnancy** (explosion of hormones)
- Bacteria overgrowth
- Genetics
- Stress



### Education

- **AVOID: NCLEX TIPS**
  - **Vigorous scrubbing** / washing
  - **Squeezing** or **picking** lesions
  - **Antibacterial soap**
  - Smoking
- Wash hair & skin frequently “gently”
- Apply
  - Moisturizer
  - Skincare products **“non-comedogenic”**
- Diet:
  - **“well balanced”**
  - **Fluid** intake: 8 glasses of water / day

#### HESI

The nurse is teaching .. **interventions** to maintain healthy skin. Which teaching does the nurse include?  
**Select all that apply.**

- **Refrain from smoking** any tobacco
- **Wash your hair and skin** frequently
- **Apply moisturizer** after showering
- **Drink eight glasses of water** per day



### Treatment



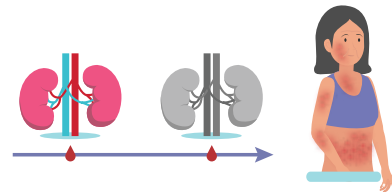
- Tetracycline
- Isotretinoin



Notes

### Pathophysiology

Systemic Lupus Erythematosus (SLE) is an **autoimmune disorder** where the body attacks itself, causing major **inflammation** in the skin, joints, kidneys, & heart resulting in **organ failure over time**, most often in the kidneys.



### Triggers

Avoid anything that can irritate the body

**S S S S**

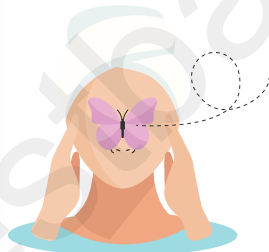
<p><b>S</b></p> <p>Sun exposure/ UV radiation <b>NCLEX TIP</b></p>	<p><b>S</b></p> <p>Smoking</p>	<p><b>S</b></p> <p><b>Stress:</b> physical &amp; emotional</p>	<p><b>S</b></p> <p>Sepsis "infection"</p>
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### Causes & Risks

- Cause is unknown
- Most cases: Women 14 - 45 years.
- **UV radiation from the sun makes it worse**

### Signs & Symptoms

1. **A butterfly-shaped rash** (cheeks & nose) **NCLEX TIP**
2. **Fever** higher than 100°F **Report to HCP**
3. **Joints** (painful & swollen)



### Labs

- Creatinine **over 1.3** = Bad Kidney **NCLEX TIP**
- Decreased **WBC** (norm: 5,000 - 10,000)
- Inflammation:
  - Increased ESR (erythrocyte sedimentation rate)
  - CRP (C Reactive Protein)

**Creatinine = 1.3**



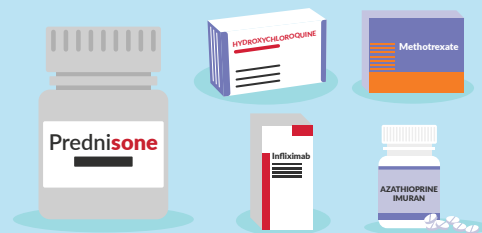
### Client Education

**AVOID** the 4 S's **NCLEX TIP**

- S - **Sun exposure** / UV light
  - S - Smoking
  - S - **Stress:** physical & emotional
  - S - Sepsis "infection"
- Notify the HCP for **fever\***

### Pharmacology

- **Steroids "-sone"** Prednisone
- **Immunosuppressants:**
  - Hydroxychloroquine
  - Methotrexate
  - Infliximab
  - Azathioprine (brand: imuran)



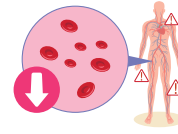
### Notes

# Anemia Overview & Iron Deficiency Anemia

Med Surg: Hematology

## Anemia Pathophysiology

Anemia is where the body lacks enough RBCs (Red Blood Cells) to carry **oxygen** around the body to perfuse the tissues. Clients present tired, fatigued & pale skin, with shortness of breath and dizziness, as the body lacks oxygen.



- Top Tested**
1. Iron deficiency Anemia
  2. Sickle cell anemia
  3. Pernicious Anemia

## Anemia Causes

- **Blood loss:** surgery, trauma, excessive menstruation ect.
- **Chemotherapy & Immunosuppressants:** which suppresses the bone marrow where the RBCs are made.
- **Lack of iron, B12 & other building blocks:** like with iron def. anemia & pernicious anemia

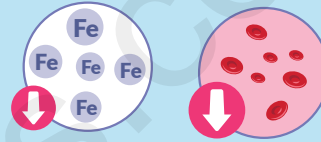
### NCLEX TIP

#### Hemoglobin

- Normal: 12 +
- Bad: 8 - 9
- **Less than 7 = Heaven**

## Iron Deficiency Anemia

The body lacks iron (Fe) a critical building block to help make RBCs - red blood cells. This is the most common anemia globally



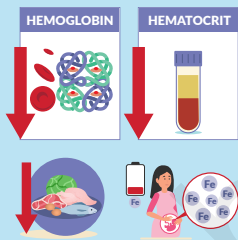
### Kaplan Question

The nurse understands which is the most common type of anemia?

- Iron-deficiency anemia

## Causes

- **Diet low in:** meat, fish, & poultry
- Gastric bypass surgery
- **Pregnancy:** fetus stores iron
- **Pica**
  - **LOW hematocrit and hemoglobin levels** **NCLEX TIP**



### Infants & Children

1. Premature birth
2. Insufficient oral intake
3. **Excessive intake of milk** **NCLEX TIP**
4. Preterm infants exclusively bottle-fed with breast milk
5. **Vegan diet** **NCLEX TIP**
  1. Fortified breads & cereals
  2. **HIGH** iron foods with **HIGH vitamin C**
  3. Calcium & Vitamin D



## Treatment

### Rich in iron

1. Meat, Fish, Poultry
2. Spinach "green leafy" & whole grains

### Infants & Children

Limit **EXCESSIVE** milk intake

### Iron + Vit. C

**HIGH** iron foods  
**HIGH** vitamin C



### Kaplan Question

The nurse counsels a client diagnosed with **iron deficiency anemia**. The nurse determines teaching is effective if the **client selects which menu?** Select all that apply

- **Flank steak** & green leafy vegetables
- **Liver** & onions, spinach



## Signs & Symptoms

- **Dyspnea**
- **Pallor "pale skin"**
- **Tachycardia**

### HESI Question

When assessing the patient's **integumentary** system, which **dermatologic** manifestation may indicate **anemia**?

- Pallor **NCLEX TIP**

## Pharmacology

Ferrous Sulfate (oral)



Iron Dextran (IV / IM)



### KEY POINTS

- Dark or black stools = **Normal & Expected** NOT GI BLEED
- Empty stomach **1 HOUR BEFORE** medications

### HESI Question

A nurse is educating a patient with **iron deficiency on foods high in iron**. Which meal, if chosen by the patient, demonstrates an understanding of **iron-rich foods**?

- **Grilled chicken thigh**, sauteed spinach, and whole grain bread



### HESI Question

A patient with **iron deficiency anemia** is to be discharged home with **iron replacement therapy**. Which instruction would be most important to **maximize iron absorption**?

- **Glass of orange juice**

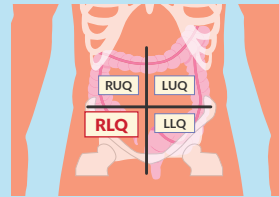


# Appendicitis

## Med Surg: GI - Gastrointestinal

### Pathophysiology

Inflammation of the appendix, located in the **RLQ** (Right Lower Quadrant) of the abdomen.



RLQ - **R**ight **L**ower **Q**uadrant



### Signs & Symptoms

- **Fever** low-grade
- **RLQ** pain with **rebound tenderness**  
"Pain between the **right hip area** & belly button"



Rebound tenderness

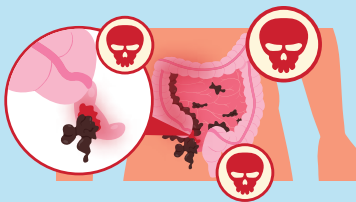
### Common NCLEX Question

What is the typical **pain presentation** of a client with **appendicitis**?

- 1. Pain starts in the left side below the belly button
- 2. Pain is diffuse and all over the abdomen
- 3. Pain starts in the left upper quadrant radiating to the shoulder
- 4. Pain starts around the **umbilicus** and then moves to the **right lower quadrant**

### Complications

**Perforation = Peritonitis**  
**Medical Emergency!**



### NCLEX TIPS

- **High** Fever
- Tachycardia, Tachypnea
- **Rigid "board-like abdomen"**
- **Rebound tenderness**

**NO** heat pad or blanket  
**NO** laxatives  
**NO** enemas



### Interventions

1. NPO
2. **IV normal saline** or **LR (Lactated Ringers)**
3. Pain meds:  
**IV** morphine / hydromorphone  
**NEVER** give pain medications **until seen by the surgeon.**

#### PRIORITY



#### Side note

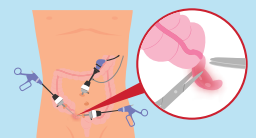


### Surgery

#### Appendectomy

#### Post-Operative

- **Avoid** lifting heavy objects
- Prevent **Pneumonia**
  - Assist with **early ambulation**
  - **Deep breath & Cough**
  - Incentive spirometer
- Prevent **Infection**
  - **NO** baths - shower **ONLY**
  - Report **redness, swelling, & drainage** at incision sites



Appendectomy

#### PRIORITY



# Electrolytes

**Sodium: 135- 145** Salt, soy sauce, pork, cottage/ American cheese, spinach, Pickles

**HYPO:**

- A - Adrenal insufficiency
- I - Intoxication of water
- D - Diuretics
- S - SIADH

**S/S:** Tachycardia, Headache, Personality Change, Weakness, Hyperactive BS Seizures.

**INTERVENTIONS:**

- D - Diet, Cheese, Milk, Soy Sauce, Salt, Bacon, Beef Broth
- R - Restrict fluids and NPO
- W - Weights daily
- A - Administer IV Hypertonic Solutions
- I - I & O
- T - Thiazide Diuretics



**HYPER:**

- D - Dehydration
- I - IV Hypertonic Solution excess
- V - Vitamins "Sodium" Supplement
- A - Amount of sodium intake excess
- S/S:** Irregular HR, Hyperactive BS, Thirst, Restlessness, Dyspnea, Muscle Weakness.

**INTERVENTIONS:**

- M - Monitor sodium intake/ Labs
- A - Alka-seltzer, Aspirin, and cough preps shouldn't be administered
- G - Gravity of urine monitoring
- I - I&O
- C - Cardiac monitoring

**Potassium: 3.5- 5.0** Avocados, Raisins, Cantaloupe, Bananas, Skim milk, Spinach

**HYPO:**

- G - GI loss (Vomiting)
- O - Osmotic Diuresis
- T - Thiazides and Loop diuretics
- S - Severe Acid Imbalance
- H - Hyperaldosteronism
- O - Other meds such as Corticosteroids
- T - Transcellular Shift

**S/S:** Tachydysrhythmias, Ortho Hypotension, Lethargy/Fatigue, BS, Constipation, Anorexia, Muscle Weakness, "U" waves on EKG.

**INTERVENTIONS:**

- A- Assess EKG and ABG
- I - IV Potassium Chloride **\*\*\*NEVER IV PUSH\*\*\***
- D - Diet: green leafy veggies, oj, raisins, bananas



**HYPER:**

- M - Medications Ace, Spironolactone, NSAIDS
- A - Acidosis: metabolic and respiratory
- C - Cell destruction (burn, trauma, Injury)
- H - Hypoaldosteronism
- I - Intake excess  $K^+$
- N - Nephrons/ renal failure
- E - Excretion : impaired
- S/S:** Bradydysrhythmias, Tall "T" waves on EKG, Cardiac Arrest, ↑BS Diarrhea, Paresthesias.

**INTERVENTION:**

- M - Monitor EKG
- D - Diet, limit green leafy veggies and avocado
- K - Kayexalate administration
- I - IV Sodium Bicarb, Calcium Gluconate,
- D - Dialysis

**Calcium: 9-11** Yogurt, cheese, milk, sardines, rhubarb

**HYPO:**

- A - Antibiotics
- C - Corticosteroids
- I - Insulin
- D - Diuretics

**S/S:** Hypotension, Bradycardia, Tetany muscle spasm, Laryngospasm/Stridor, ↑DTR, ↑ BS diarrhea, +Trousseau's sign, +Chvostek's sign.

**INTERVENTIONS:**

- D - Diuretics
- I - I&O
- C - Calcium channel blockers /Calcium Gluconate



**HYPER:**

- H - Hyperparathyroidism
- A - Antacids
- M - Malignancies cancer cells release excess  $ca^+$

**S/S:** Dysrhythmias, Pallor, HTN, ↓ LOC Disorientation, ↓ DTR, ↓ BS, Constipation.

**INTERVENTIONS:**

- F - Sodium containing fluids
- I - IV Phosphate
- L - Lasix
- M - Monitor Labs and I&O

## Drug name:

**S**



**S**



- S** - **S**TERIODS
- S** - **S**tress & Swelling hormone

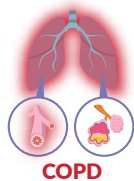
"-**S**one"

- Predni**so**ne
- Dexametha**so**ne
- Hydrocorti**so**ne
- Fludrocorti**so**ne



## Indication:

Given to help the body respond to inflammation & STRESS!  
Commonly for:



- Inflamed Lung like **COPD**
- Inflamed joints like **Rheumatoid Arthritis**
- Inflamed SKIN like **Psoriasis**
- Inflamed body - like **Lupus** where the body attacks itself
- **Allergic** reaction where EVERYTHING swells UP



Also given to **Addison** clients  
We need to **ADD some** steroids

## ADDISON TREATMENTS:

## 7 S's STEROID PRECAUTIONS

"-**so**ne" predni**so**ne, hydrocorti**so**ne, dexametha**so**ne

**S** **SWOLLEN** (Water gain = Weight gain)  
**KEY TERMS:** "Sudden" "excessive", "rapid"

**REPORT:** 1 Lb. in 1 day, or 2-3lbs in a few

**S** **SEPSIS** (Infections or Illness)  
"Low WBC" Fever is **PRIORITY** **NCLEX TIP**

**S** **SUGAR INCREASED**  
"Hyperglycemia" **NCLEX TIP**

**S** **SKINNY**  
Muscle & Bones "Osteoporosis" (R/F Fx)

**S** **SIGHT**  
(Cataracts risk) refer to Optometrist

## PREVENT CRISIS:

**S** **SLOWLY** taper off  
(**NEVER** abruptly stop) **NCLEX TIP**

**S** **STRESS** or Surgery  
(increase dose)

## TOP 3 MISSED Questions:

The nurse should be concerned when the client states: "I have a **sore on my leg that won't go away**".

Which medication should be reviewed with HCP.  
**Select all that apply**

- 1. Naproxen
- 2. Dihydromorphinone
- 3. Dexamethasone
- 4. Hydrocodone
- 5. Hydrocortisone

Which priority teaching is required for a patient prescribed **prednisone** for Lupus?

- 1. Report slight increases in blood sugar to HCP immediately.
- 2. **Increase dose before surgery or during times of stress.**
- 3. Monitor weight weekly.
- 4. Take with full meal at breakfast.

Which of the follow is an indication that the client needs additional teaching, while taking **fludrocortisone**?

- 1. I will not discontinue this medication abruptly
- 2. **New bilateral pedal edema is normal**
- 3. The most important value to monitor is my weight.
- 4. I will report signs & symptoms of infection

# 5 Step EKG INTERPRETATION

Heart rate	Rhythm	P wave	PR interval (in seconds)	QRS (in seconds)
60 -100/min	Regular	Present before each QRS, identical P/QRS ratio 1:1	0.10 - 0.20 (<5 small squares)	Normal shape < 0.12

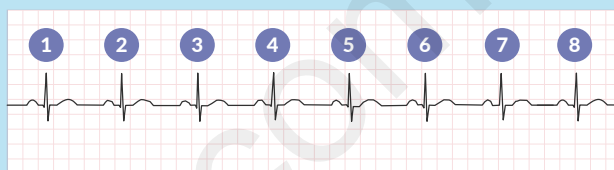
## Heart Rate

$$8 \times 10 = 80$$

### 1. Normal Sinus Rhythm

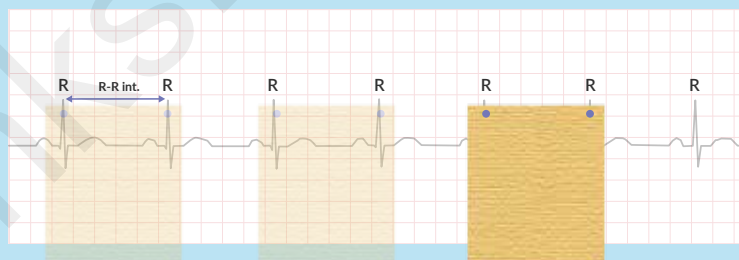
Rate - 60 -100

count the peaks - we have 8 here multiply by 10 = 80 beats!



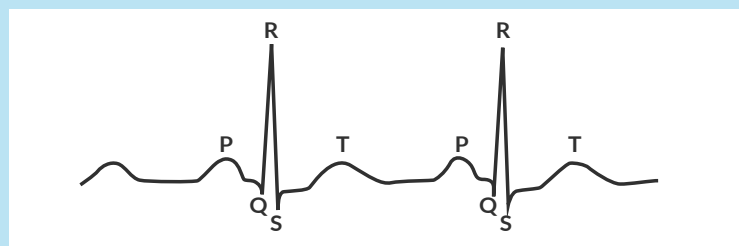
## Rhythm

2. **Rhythm** - R peaks are evenly spaced apart. To quickly measure this simply grab a paper & mark 2 R peaks then just march it out. The R peaks should be even every time.



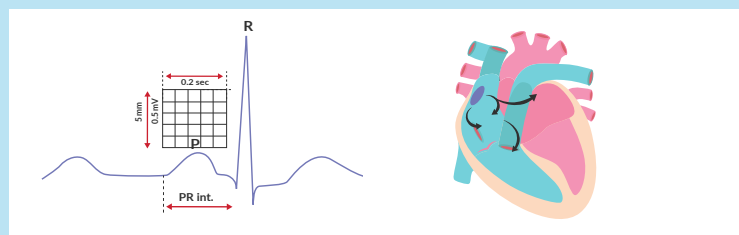
## P Wave

3. **P wave** - which is our atria contracting is it present? & does it have its buddy QRS? we need a P with QRS every time



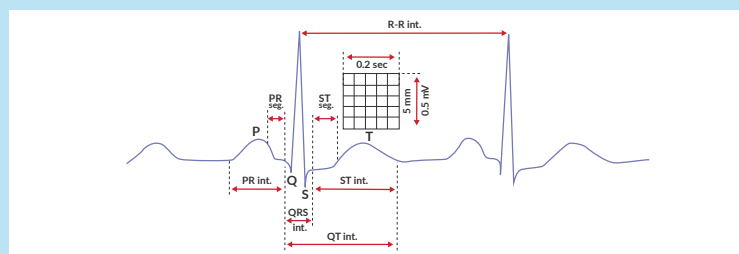
## PR interval (in seconds)

4. **PR interval** - basically measures the time it takes between atrial contractions & ventricular contraction should be 5 mini boxes or less - or .10 - 2.0 seconds here.



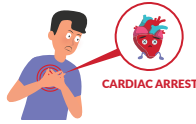
## QRS (in seconds)

5. **QRS** - Ventricles contracting Is it present, upright & TIGHT! Should NOT be wide should only be 3 boxes - .12 seconds here.



## Pathophysiology

Done for clients who go into cardiac arrest meaning the heart has stopped pumping!

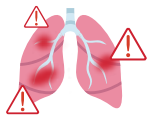


## Causes

Caused by a variety of factors from - Hypoxia, respiratory failure, toxins, blood clots, electrolyte imbalances & others. They are commonly described as Hs & Ts.



Hypoxia



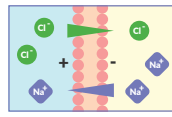
Respiratory failure



Toxins



Blood clots



Electrolyte imbalances

## Instruction

If NO caregivers are around to help, you must initiate immediate CPR with high quality compressions. Start Chest Compressions BEFORE calling for help if you are the only care giver! (Most students get this wrong on exams)

**Immediate CPR** with high quality **compressions**



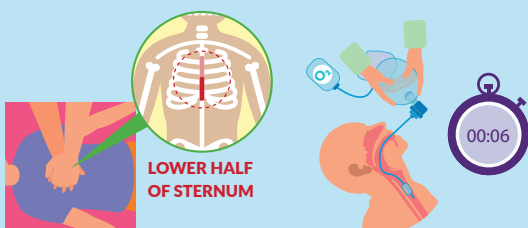
Immediate CPR with chest compressions helps to provide IMMEDIATE oxygen or perfusion to the brain & vital organs in order to prevent damage & even DEATH!

## Adult CPR

### Chest compression Immediately

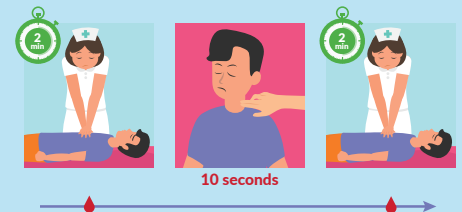
#### KEY Numbers

- Rate is **100 - 120/min** **NCLEX TIP**
- Depth of at least **2 - 2.4 inches (5 - 6 cm)** **NCLEX TIP**
- Hands in center of chest **lower half of sternum**
- Breaths:
  - **Manual: 30 compressions** & 2 rescue breaths
  - Intubation: Every **6 seconds** without interruption



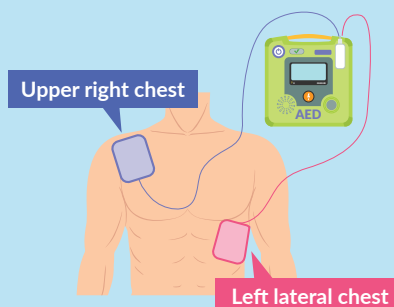
LOWER HALF OF STERNUM

During CPR, compressions are paused every 2 mins to assess pulse.



### AED pads (8 years & older)

- **Upper right chest** near the shoulder
- **Left lateral chest** near the anterior axillary line below the nipple



Upper right chest

Left lateral chest

### How to SHOCK an Adult

1. Defibrillator pads are placed
2. **Call out & look** to make sure everyone is clear
3. Continue **chest compression immediately** after the shock



NO IV sedation needed. NO synchronized button. That is for cardioversion

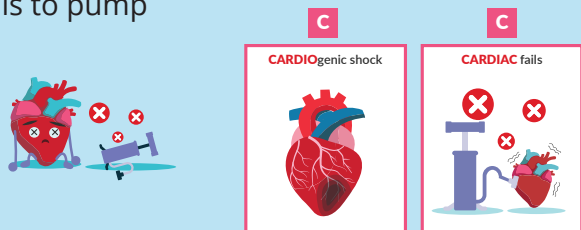


# Cardiogenic & Anaphylactic Shock

## Pathophysiology

### Cardiogenic shock

The heart fails to pump blood out of the heart & to the body like in a heart attack where heart muscles die or heart failure exacerbation - where the heart fails to pump



## Treatment

**Positive INOtroptic** = more FORCEFUL beats



Dopamine & Digoxin which both have INOtroptic properties meaning it helps the heart to pump more forcefully!

### D - Dopamine (vasopressor)

#### Caution:

- Tachycardia (over 100/min) **NCLEX TIP**
- Arrhythmias

### D - Digoxin

## Signs & Symptoms

### Saunders's

A client having a... **myocardial infarction** based on elevated **troponin** levels ... the nurse should **alert the primary** health care provider because the **vital sign changes** ... are **most** consistent with which complication? **Refer to the exhibit.**

- Cardiogenic shock

Cardiogenic shock - Cardiac problem - Heart attack - MI heart tissue DIES - heart FAILS to pump adequately. So just look at the BLOOD Pressure here when clicking on the exhibit the low Blood pressure lower & lower it goes!

## Client's Chart

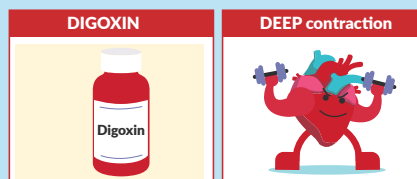
Time	11:00 a.m.	11:15 a.m.	11:30 a.m.	11:45 a.m.
Pulse	92 beats/min	96 beats/min	104 beats/min	118 beats/min
Resp. rate	24 breaths/min	26 breaths/min	28 breaths/min	32 breaths/min
BP	140/88 mm Hg	128/82 mm Hg	104/68 mm Hg	88/58 mm Hg

### Saunders's

Client with heart failure **exacerbation...** and suspected **state of shock**. The nurse knows which intervention is the **priority** for this client?

- Administration of **Digoxin**

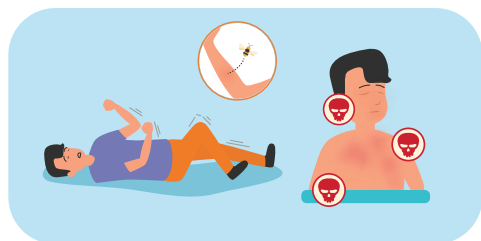
### D's for DEEP Contraction



## Anaphylactic Shock

Severe allergic reaction - like from a bee sting or peanut allergy.

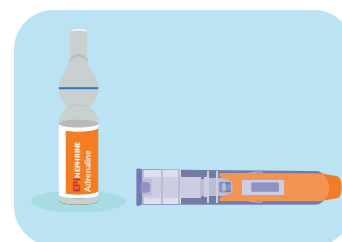
**Anaphylactic** shock - severe **ALLERGIC** reaction



## Treatment

### NCLEX TIP

**Epinephrine**  
EpiPen Auto Injector



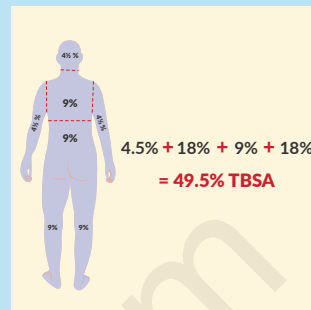
### Top MISSED Questions

Client has full thickness burns to the all **posterior** body surfaces. Using the **rule of nines**, calculate the % of total body surface area affected.

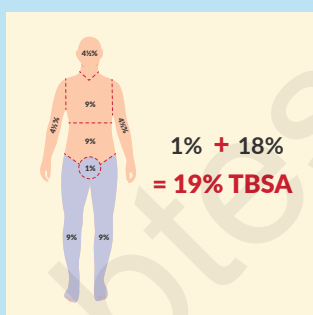
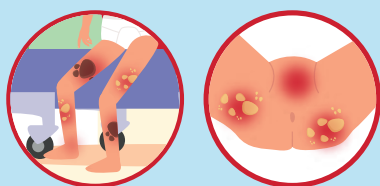
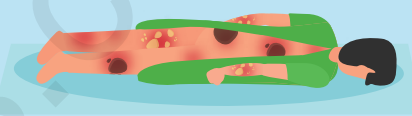
**Posterior body surfaces:**

- Head = 4.5%
- Back = 18%
- Right & left arm = 9%
- Right & left leg = 18%

✔️ **Answer = 49.5% TBSA**



**50%** of the body



Client has partial thickness burns to the anterior legs & perineum.

Using the **rule of nines**, calculate the % of total body surface area affected.

- 1% peri-area
- 18% Right & Left leg

✔️ **Answer = 19% TBSA**

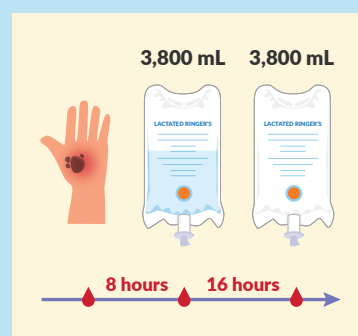
Client weighed 100 kg with **19% TBSA**... calculate the **lactated ringers** fluid resuscitation needed?

$$4 \text{ mL} \times 100 \text{ kg} \times 19 \text{ TBSA}$$

✔️ **Answer = 7,600 ml**  
(within the first 24 hours)

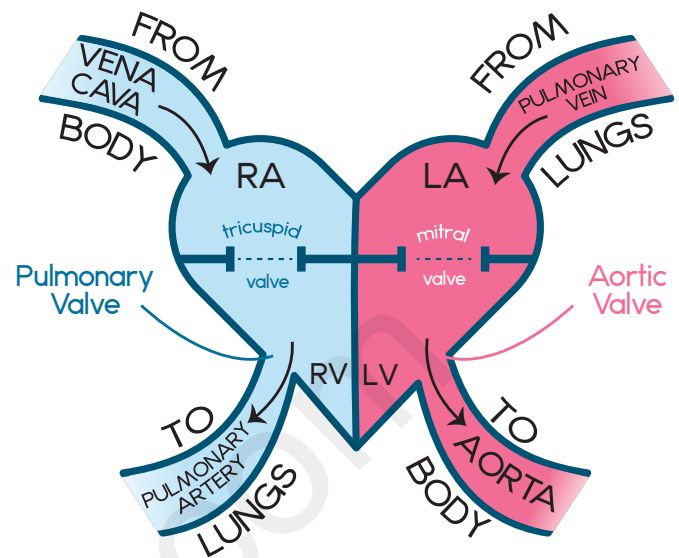


$$4 \text{ mL} \times 100 \text{ Kg} \times 19\% \text{TBSA}$$



### Blood flow of the heart

1. Deoxygenated blood gets “**vacuumed**” back to the **vena cava** (superior and inferior vena cava)
2. Right Atria - Tricuspid Valve - Right Ventricle.
3. Through the **pulmonary valve & pulmonary arteries into the lungs** to drop off CO<sub>2</sub> & pick up O<sub>2</sub> (oxygen) in the capillaries.
4. This oxygenated blood is then pumped through the **pulmonary veins**.
5. Left Atrium - Mitral Valve (bicuspid valve) - Left Ventricle
  - Side note: Left ventricle is the “**BIG momma pumper**” pumping oxygen rich blood **OUT** to the body = cardiac **OUTPUT**
6. **Left Ventricle** pumps O<sub>2</sub> rich blood through the aortic valve & then finally
7. The **Aorta** & out to the body via the “Arteries = pump away”.



### Anatomy of the heart

Cone shaped organ located in the mediastinal space.

The pericardial sac encases the heart and protects it, lubricates and holds 5-20 ml of pericardial fluid.

This has two layers.

- the parietal pericardium which is the outer membrane.
- the visceral pericardium is the inner membrane attached to the heart.

### Consists of 3 layers

- **Epicardium:** outermost layer of the heart.
- **Myocardium:** middle layer of the heart, the contracting muscle.
- **Endocardium:** innermost layer of the heart, lines the inner chambers and the valves.

### Function of circulation

Delivers O<sub>2</sub>, nutrients, hormones and antibodies to organs, tissues and cells. Removes the end product of cellular metabolism

### Function of the heart

Pumps oxygenated blood into the arterial system to supply capillaries and tissue.

Pumps oxygen poor blood from the venous system through the lungs to be reoxygenated.

### 4 valves

Two atrioventricular valves that close at the beginning of ventricular contraction. They prevent blood from flowing back into the atria.

- **Tricuspid valve:** on the right side of the heart.
- **Bicuspid valve:** on the left side of the heart.

Two semilunar valves that prevent blood from flowing back into the ventricles during relaxation.

- **Pulmonic semilunar valve:** between the right ventricle and pulmonary artery.
- **Aortic semilunar valve:** between the ventricle and the aorta.

### Coronary arteries

- **Right main coronary artery:** supplies the right atrium and ventricle, the inferior left ventricle, posterior septal wall, 1SA and AV nodes.
- **Left main coronary artery:** consists of two main branches left anterior descending which supplies blood to the left ventricle and the ventricular septum and circumflex arteries which supply blood to the left atrium and the lateral/posterior aspects of the left ventricle.

btestbanks.com

### 4 chambers

- **Right atrium:** carries deoxygenated blood from the body via superior and inferior vena cava.
- **Right ventricle:** carries blood from the right atrium and pumps it into the lungs through the pulmonary artery.
- **Left atrium:** carries oxygenated blood from the pulmonary veins.
- **Left ventricle:** carries oxygenated blood from the left atrium and pumps it into the systemic circuit through the aorta.

### Electrical conduction:

- **SA node:** pacemaker of the heart and initiates contraction at 60-100 BPM.
- **AV:** receives impulses from the SA node initiates and sustains impulses at 40-60 BPM.
- **Bundle of His:** continuation of the AV node and branches into the the bundle branches which terminate in the purkinje fibers.
- **Purkinje fibers:** network of conducting strands beneath the ventricular endocardium. They can act as a pacemaker when the SA and AV fail as pacemakers. They can sustain at 20-40 BPM.