Vital Signs Review

PHLEBOTOMY CAREER TRAINING

WELCOME!

Week 1:

Objective:

Communication Skills

Vital Signs

- **Blood Pressure**
- **Pulse**
- **Respiration**
- **Temperature**
- **SpO2 (Oxygen Level)**
- **Height and Weight**

BMI and Growth Charts

Medical Terminology

Communication Skills

- Being courteous and respectful
- Having a positive attitude
- Establishing rapport with patients
- Using effective communication
- Knowledgeable
- Professional

Why Are Vital Signs Vital?

Vital Signs Are

- Vital Signs Encompass the following:
    - Blood Pressure
    - Temperatures
    - Respiration
    - SpO2 (Oxygen)
    - Pulse Oximeter

Vital Signs...

- Vital signs are used to measure the body's basic functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases and show progress toward recovery.
- The normal ranges for a person's vital signs vary with age, weight, gender and overall health.

What does Blood Pressure Mean?

Blood Pressure is the results of the heart pumping blood through the circulatory system.

Your blood pressure is recorded as two numbers:

- **Systolic blood pressure** (the first number) – indicates how much pressure your blood is exerting against your artery walls when the heart beats.
- **Diastolic blood pressure** (the second number) – indicates how much pressure your blood is exerting against your artery walls while the heart is resting between beats.

Equipment used to Check Blood Pressure

- Blood Pressure Wrist / Cuff Machine
- Manual Blood Pressure Check
- Blood Pressure Arm / Cuff Machine
  - For accurate readings check blood pressure manually

How is Blood Pressure Taken?

- Always use the same arm when **taking** your **blood pressure**. Rest your arm, raised to the level of your heart, on a table, desk or chair arm, or place wrist on heart depending on BP pressure method. You might need to **place** a pillow or cushion under your arm to elevate it high enough. **Place** the cuff on bare skin, not over clothing.

- It's best to take your **blood pressure** from your left **arm**
  (Not unless told otherwise by a medical professional)

Blood Pressure Chart

The five blood pressure ranges as recognized by the American Heart Association.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)	and/or	DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Which number is more important?

Over the years, research has found that both numbers are equally **important** in monitoring heart health.

However, **most** studies show a greater risk of stroke and heart disease related to **higher systolic pressures** compared with elevated **diastolic pressures**.

Health Threats From High Blood Pressure

Heart attack — High blood pressure damages arteries that can become blocked and prevent blood flow to the heart muscle.

Stroke — High blood pressure can cause blood vessels in the brain to clog more easily or even burst.

Heart failure — The increased workload from high blood pressure can cause the heart to enlarge and fail to supply blood to the body.

Kidney disease or failure — High blood pressure can damage the arteries around the kidneys and interfere with their ability to filter blood effectively.

Vision loss — High blood pressure can strain or damage blood vessels in the eyes.

Sexual dysfunction — High blood pressure can lead to erectile dysfunction in men or lower libido in women.

Angina — Over time, high blood pressure can lead to heart disease or **microvascular disease (MVD)**. Angina, or chest pain, is a common symptom.

Peripheral artery disease (PAD) — Atherosclerosis caused by high blood pressure can cause a narrowing of arteries in the legs, arms, stomach and head, causing pain or fatigue.

High Blood Pressure Is A “Silent Killer”

- Most of the time there are no obvious symptoms.
- Certain physical traits and lifestyle choices can put you at a greater risk for high blood pressure.
- When left untreated, the damage that high blood pressure does to your circulatory system is a significant contributing factor to heart attack, stroke and other health threats.

Things That Raise Your Blood Pressure

Decongestants

- People with high blood pressure should be aware that the use of decongestants may raise blood pressure. Many over-the-counter cold and flu preparations contain decongestants.

Salt

- The American Heart Association recommends no more than 2,300 milligrams (mgs) a day and an ideal limit of no more than 1,500 mg per day for most adults.

Alcohol

- If you drink, limit your consumption to no more than two drinks per day for men and no more than one drink per day for women

Hot Tubs & Saunas

- People with high blood pressure should not move back and forth between cold water and hot tubs or saunas. This could cause an increase in blood pressure.

Weight gain

- Did you know you may experience health benefits from losing as few as 10 pounds?

Sitting

- Just a few minutes of light activity for people who sit most of the day can lower blood pressure in those with Type 2 diabetes.

Symptoms of Low Blood Pressure

- Dizziness or lightheadedness
- Nausea
- Fainting
- Dehydration and unusual thirst
- Dehydration can sometimes cause blood pressure to drop. However, dehydration does not always cause low blood pressure. Fever, vomiting, severe diarrhea, overuse of diuretics and strenuous exercise can all lead to dehydration, a potentially serious condition in which your body loses more water than you take in.
- Lack of concentration
- Blurred vision
- Cold, clammy, pale skin
- Rapid, shallow breathing
- Fatigue
- Depression

Does high blood pressure Increase Heart Rate?

- Heart rate and blood pressure do not necessarily increase at the same rate. A rising heart rate does not cause your blood pressure to increase at the same rate. Even though your heart is beating more times a minute, healthy blood vessels dilate (get larger) to allow more blood to flow through more easily.

Preventing & Managing HBP

The only way to know if you have high blood pressure (HBP, or hypertension) is to have your blood pressure tested. Understanding your results is key to controlling high blood pressure.

The best to avoid high blood pressure altogether. Healthy lifestyle choices are a great place to start.

- Fun Fact: Abbreviations for Blood Pressure: BP

Blood Pressure Questions?

What is A Pulse?

- The **pulse rate** is a measurement of the heart **rate**, or the number of times the heart beats per minute. As the heart pushes blood through the arteries, the arteries expand and contract with the flow of the blood. Taking a **pulse** not only measures the heart **rate**, but also can indicate the following: Heart rhythm.

What Is A Normal Pulse Rate?

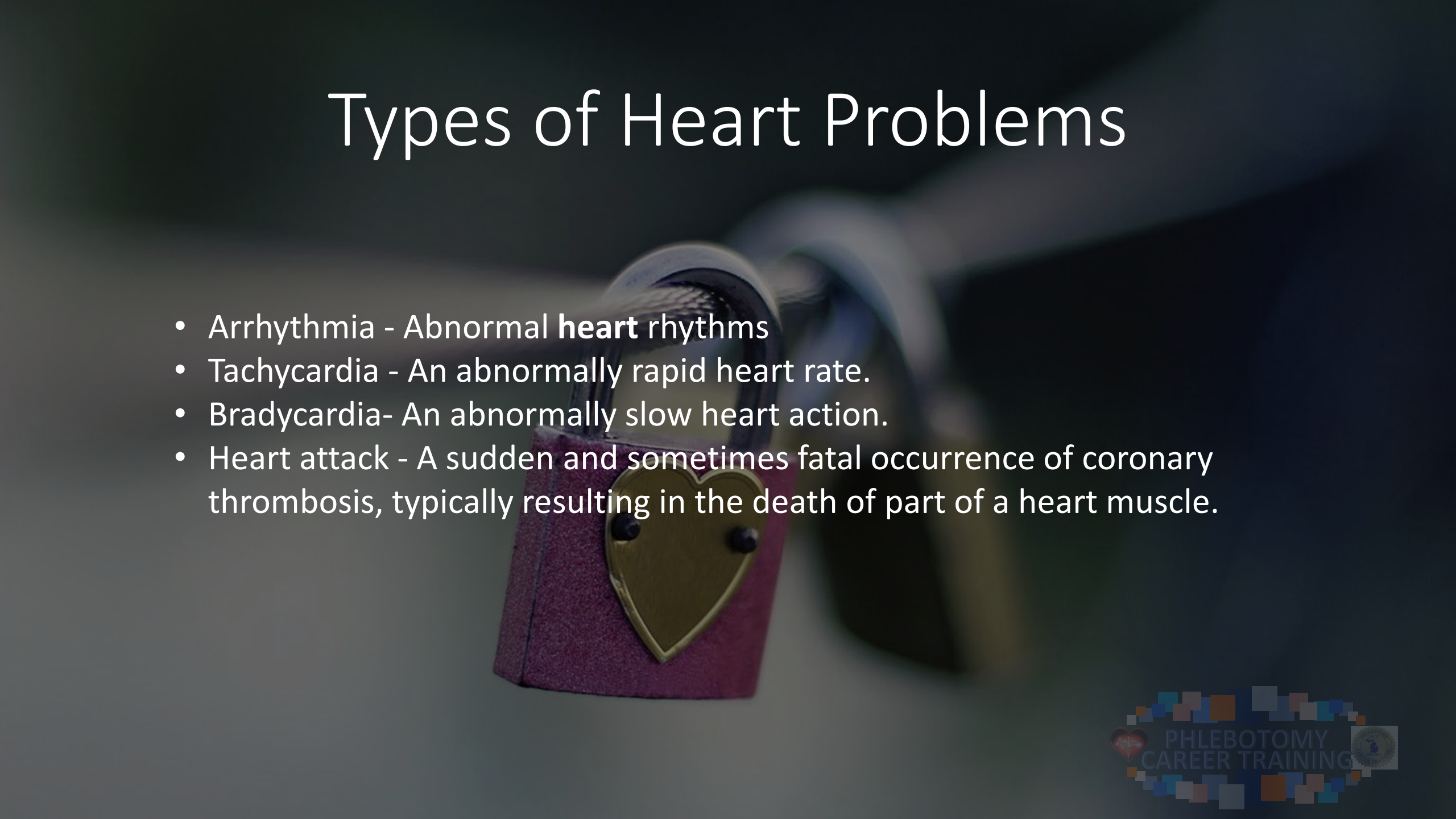
- A normal heart rate, when you're not being active, is between 60 – 100 beats per minute.

What Is An Irregular Pulse?

- An irregular pulse is when the heart doesn't beat in a regular, steady rhythm. This is also called an irregular heart rate or an arrhythmia.

  - If your heart rate is irregular, you may notice that your pulse:
  - Seems irregular or is 'jumping around'
  - Is racing, even when you're at rest
  - Seems unusually slow some or most of the time.

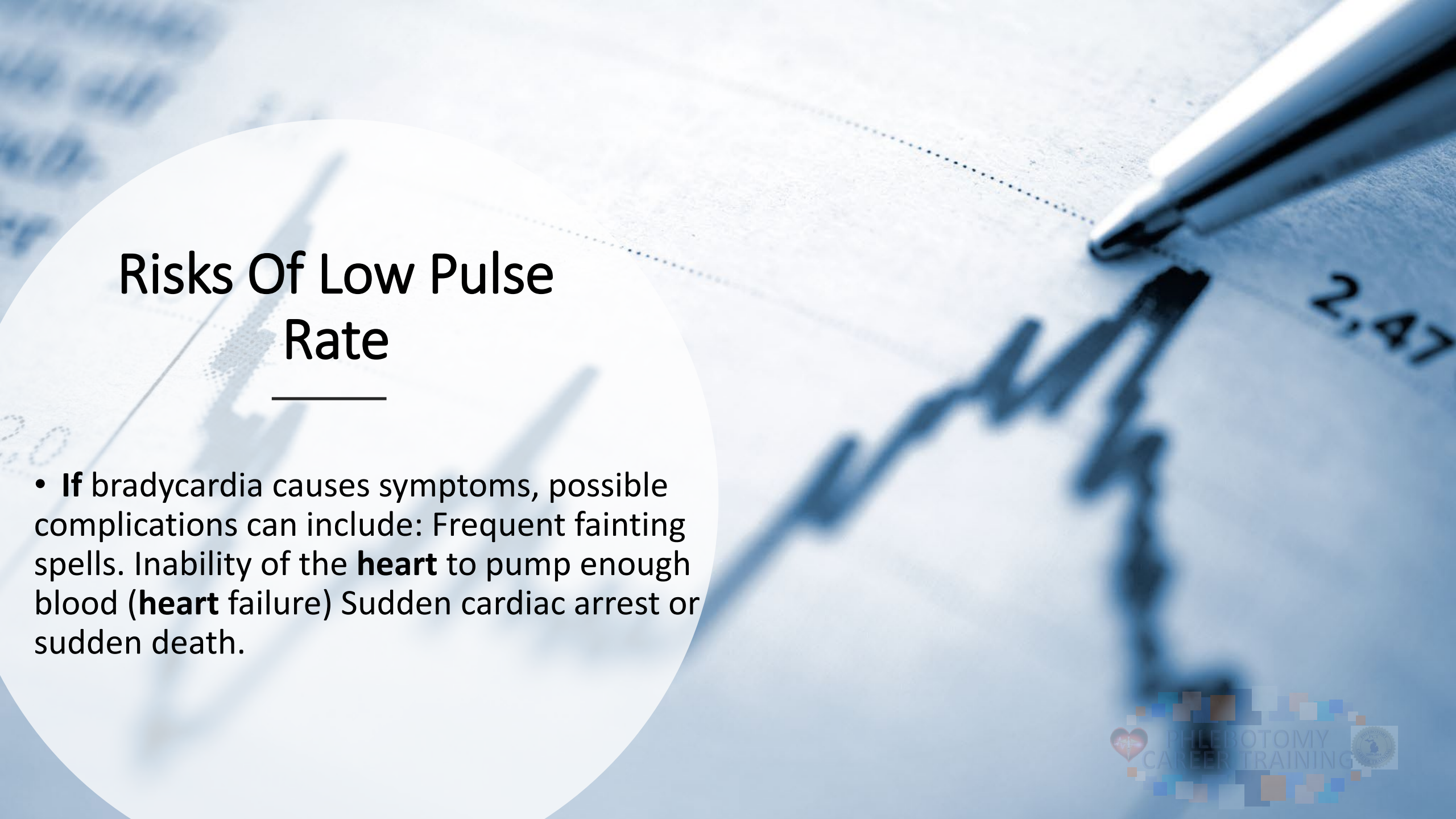
Types of Heart Problems



- Arrhythmia - Abnormal **heart** rhythms
- Tachycardia - An abnormally rapid heart rate.
- Bradycardia- An abnormally slow heart action.
- Heart attack - A sudden and sometimes fatal occurrence of coronary thrombosis, typically resulting in the death of part of a heart muscle.

Risks Of Low Pulse Rate

- **If** bradycardia causes symptoms, possible complications can include: Frequent fainting spells. Inability of the **heart** to pump enough blood (**heart** failure) Sudden cardiac arrest or sudden death.



Risks Of High Pulse Rate

- **When your heart** is beating **too fast**, it may not pump enough blood to the rest of **your** body. This can starve **your** organs and tissues of oxygen and can cause the following tachycardia-related signs and symptoms: Shortness of breath. Lightheadedness text

How To Find your Pulse Rate?

- Turn your hand so that your palm is facing upwards.
- Now place the three middle fingers from your other hand over your wrist below the base of your thumb.
- Press lightly to feel the pulse under your fingers. If you can't feel anything press slightly harder.

Important Note: Some drugs and medications affect heart rate, meaning you may have a lower maximum heart rate and target zone.

Pulse Oximeter Equipment

- Pulse Oximeter Device is used to check your Oxygen levels as well as your heart rate.

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What are heart palpitations?

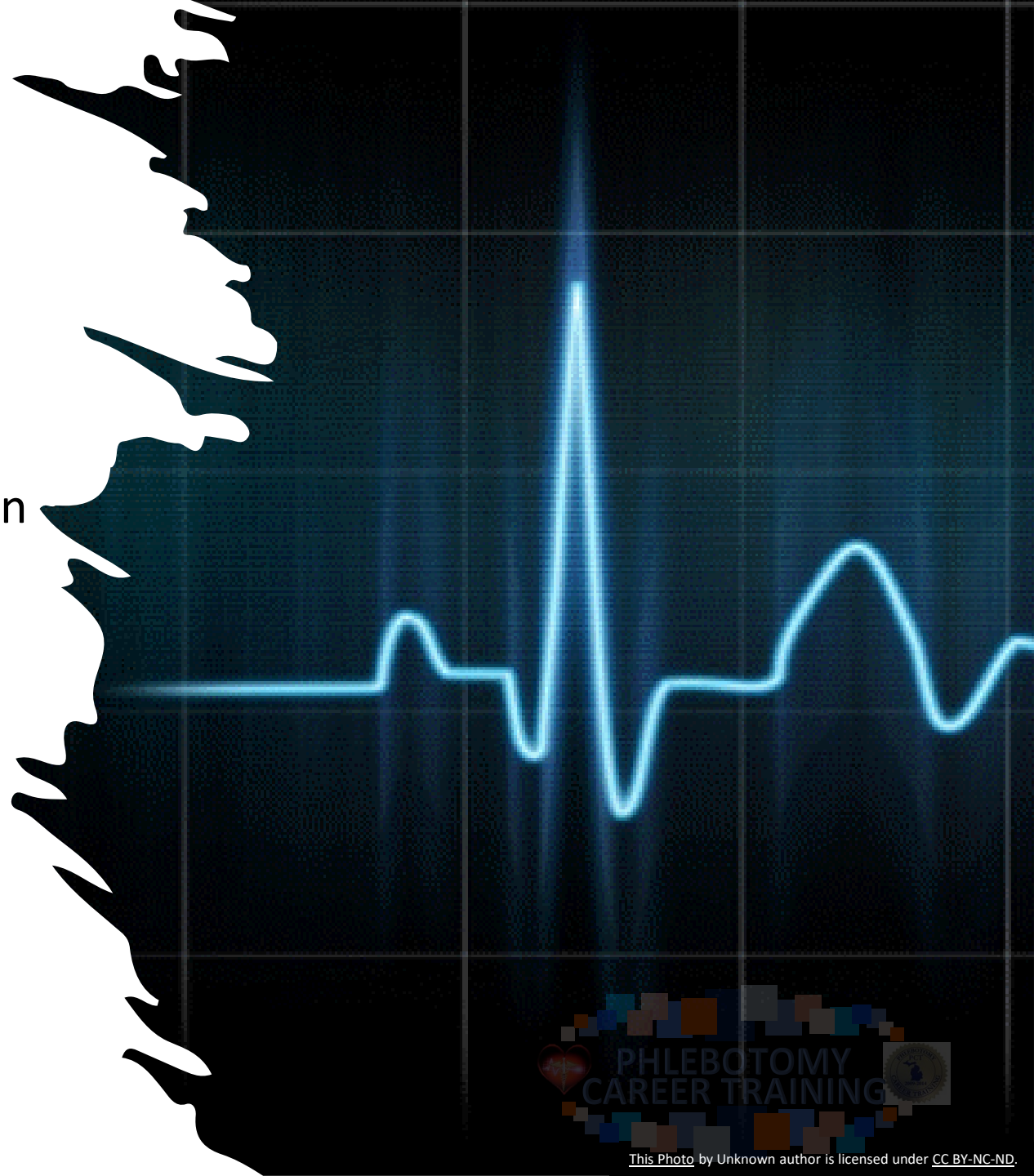
A heart palpitation is when you suddenly become aware of your heart beating, usually in an irregular way. Sometimes you can feel it in your ears or your chest when you're lying down.

Your heart beat may feel:

- too fast or slow
- like it's fluttering
- like it's thudding, or pounding.

Where Can You Check Your Pulse Rate?

- You can **measure your pulse rate** anywhere an artery comes close to the skin, such as in **your** wrist or neck, temple **area**, groin, behind the knee, or top of **your** foot. You can easily **check your pulse** on the inside of **your** wrist, below **your** thumb.



Pulse Rate Questions?

What Is Respiration?

Respiration is taking a breath or the act of breathing.
An **example** of **respiration** is inhaling and exhaling air.

What Is A Normal Respiration Rate?

Normal respiration rates for an adult person at rest **range** from 12 to 16 breaths per minute.

What Does Body Temperature Mean?

• **Body Temperature** - **temperature** of the **body**; normally 98.6 F or 37 C in humans; usually measured to obtain a quick evaluation of a person's health. blood **heat**. **temperature** - the degree of hotness or coldness of a **body** or environment (corresponding to its molecular activity).

• Body temperature normally changes throughout the day.

Body Temperature Chart

BODY TEMPERATURE CHART

Age	Normal
Body Temperature for a Baby	A normal temperature in babies and children is about **36.4C (97.5F)**, but this can vary slightly. A **fever** is usually considered to be a temperature of **38C (100.4F) or above**.
Body Temperature for Children	The average normal body temperature for children is about **37°C (98.6°F).**
Body Temperature for Adults	Normal body Temperature under the arm (**axillary**) is about **36.5°C (97.7°F)**

°C to °F Temperature Conversion Chart

36.4 °C = 97.6 °F
36.5 °C = 97.7 °F
37.0 °C = 98.6 °F
37.4 °C = 99.4 °F
37.6 °C = 99.6 °F
38.1 °C = 100.6 °F
39.0 °C = 102.2 °F
40.0 °C = 104.0 °F
41.0 °C = 105.8 °F

Temperature Check Equipment

Oral Temperature Device

Contactless Temperature Device

Risks of High Body Temperature.

- It can be fatal. Other **heat**-related illnesses can lead to **heat** stroke if they aren't treated effectively and quickly. **Heat** stroke can occur when **your body temperature** reaches above 104°F (40°C). Fainting is often the first sign.

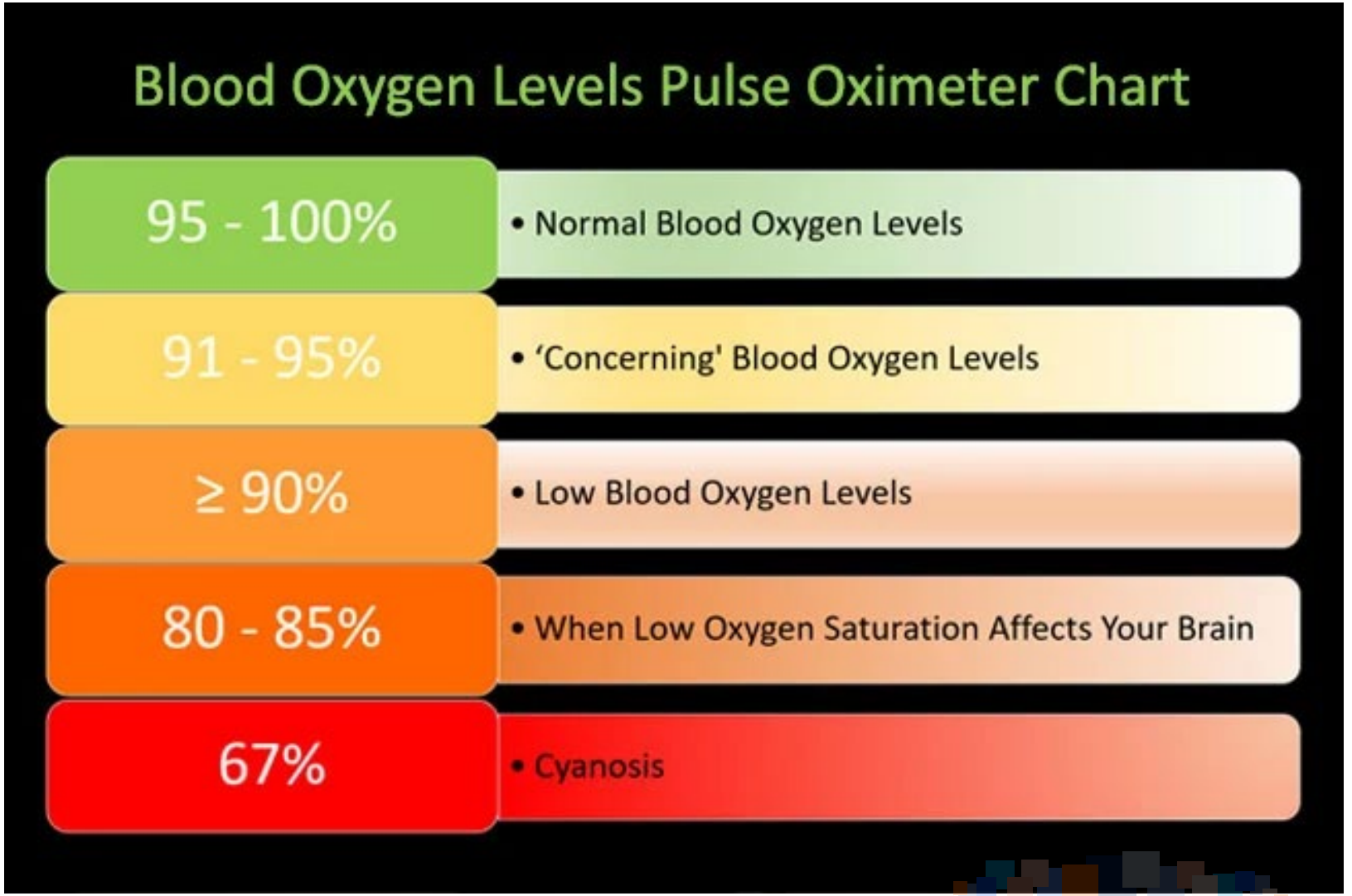
Risks Of Low Body Temperature

- When **your body temperature** drops, **your** heart, nervous system and other organs can't work normally. Left untreated, hypothermia can lead to complete failure **of your** heart and respiratory system and eventually to death. Hypothermia is often caused by exposure to cold weather or immersion in cold water

What Does SpO2 Mean?

Pulse oximetry is a noninvasive method for monitoring a person's oxygen saturation.

What Is The Normal Range: SpO2



Risks of Low Oxygen Levels

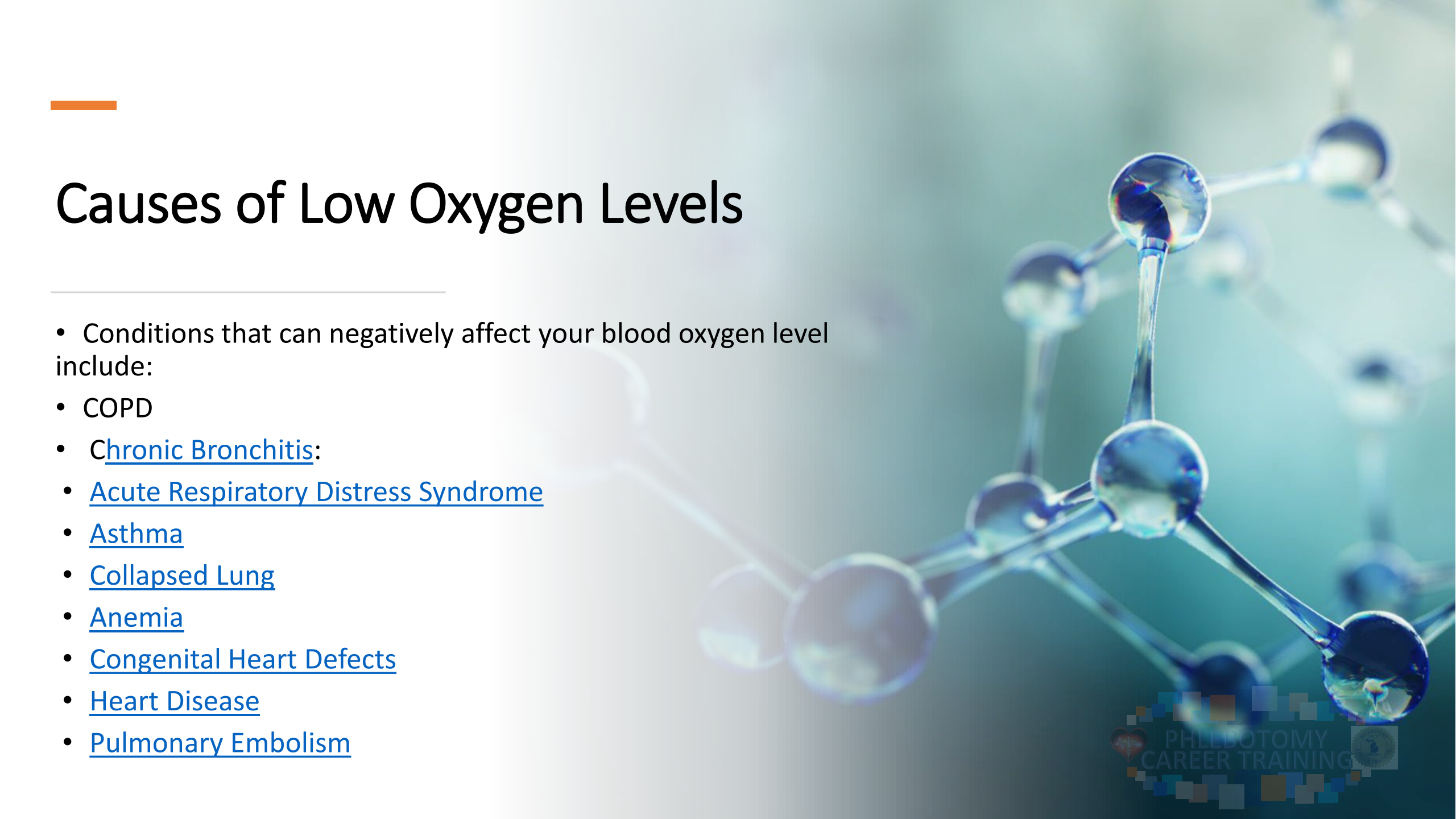
WHEN YOUR BLOOD OXYGEN LEVEL GOES OUTSIDE THE TYPICAL RANGE, YOU MAY BEGIN EXPERIENCING SYMPTOMS.

THIS INCLUDES:

- SHORTNESS OF BREATH
- CHEST PAIN
- CONFUSION
- HEADACHE
- RAPID HEARTBEAT

Causes of Low Oxygen Levels

- Conditions that can negatively affect your blood oxygen level include:
- COPD
- Chronic Bronchitis:
- Acute Respiratory Distress Syndrome
- Asthma
- Collapsed Lung
- Anemia
- Congenital Heart Defects
- Heart Disease
- Pulmonary Embolism



Risks of High Oxygen Levels

- Prolonged exposure to **higher oxygen levels** at atmospheric pressure can lead to pulmonary and ocular toxicity. Symptoms of **oxygen** toxicity may include disorientation, respiratory problems, or myopia. Prolonged exposure to **higher** than normal partial pressures of **oxygen** can result in oxidative damage to cell membranes.

How To Check SpO2 Level?

Place Index finger inside pulse oximeter device for reading.

Cold Body Temperature will give a false reading, along with nail polish, constant movement.

Height & Weight

- Height can be checked by a Stadiometer
- Weight Can be checked by a Weight Scale

BMI And Growth

- **Body Mass Index** (**BMI**) is a person's weight in kilograms divided by the square of height in meters. A high **BMI** can indicate high body fatness. **BMI** screens for weight categories that may lead to health problems, but it does not diagnose the body fatness or health of an individual.

BMI And Growth Charts

BMI can be determined by checking your weight & height and comparing it to the BMI Growth Chart

BMI Chart

WEIGHT lbs	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
kgs	45.5	47.7	50.0	52.3	54.5	56.8	59.1	61.4	63.6	65.9	68.2	70.5	72.7	75.0	77.3	79.5	81.8	84.1	86.4	88.6	90.9	93.2	95.5	97.7
HEIGHT in/cm	Underweight						Healthy					Overweight				Obese							Extremely obese	
5'0" - 152.4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
5'1" - 154.9	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	36	37	38	39	40
5'2" - 157.4	18	19	20	21	22	22	23	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38	39
5'3" - 160.0	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	32	32	33	34	35	36	37	38
5'4" - 162.5	17	18	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	31	32	33	34	35	36	37
5'5" - 165.1	16	17	18	19	20	20	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	35	35
5'6" - 167.6	16	17	17	18	19	20	21	21	22	23	24	25	25	26	27	28	29	29	30	31	32	33	34	34
5'7" - 170.1	15	16	17	18	18	19	20	21	22	22	23	24	25	25	26	27	28	29	29	30	31	32	33	33
5'8" - 172.7	15	16	16	17	18	19	19	20	21	22	22	23	24	25	25	26	27	28	28	29	30	31	32	32
5'9" - 175.2	14	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25	26	27	28	28	29	30	31	31
5'10" - 177.8	14	15	15	16	17	18	18	19	20	20	21	22	23	23	24	25	25	26	27	28	28	29	30	30
5'11" - 180.3	14	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	25	26	27	28	28	29	30
6'0" - 182.8	13	14	14	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29
6'1" - 185.4	13	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28
6'2" - 187.9	12	13	14	14	15	16	16	17	18	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27
6'3" - 190.5	12	13	13	14	15	15	16	16	17	18	18	19	20	20	21	21	22	23	23	24	25	25	26	26
6'4" - 193.0	12	12	13	14	14	15	15	16	17	17	18	18	19	20	20	21	22	22	23	23	24	25	25	26

What Does S.O.A.P Mean?

- S - Subjective
- O - Objective
- A - Assessment
- P - Plan

SOAP Note

- SOAP Notes are used in EMR (Emergency Medical Equipment) systesm. For instance, Aprima, Kareo, AdvancedMD, Theranet. These software systems are used for charting purposes to record and to bill for insurances.

SOAP Note Continued . . .

Subjective:

Chief Complaint (CC)

Examples: chest pain, decreased appetite, shortness of breath.

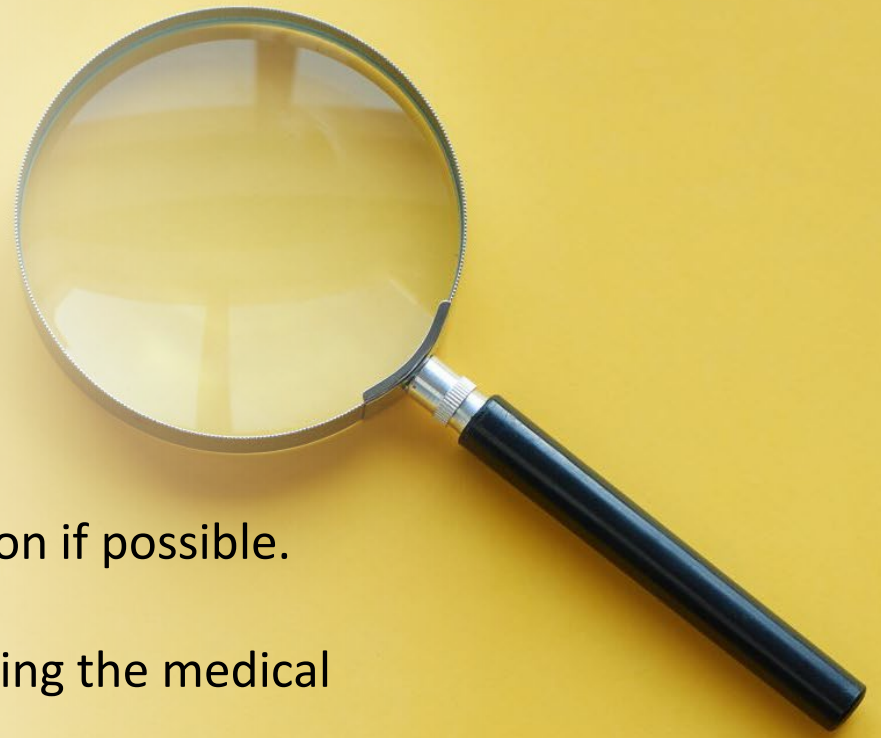
History of Present Illness (HPI)

Example: 47-year old female presenting with abdominal pain.

"OLDCARTS":

- Onset: When did the CC begin?
- Location: Where is the CC located?
- Duration: How long has the CC been going on for?
- Characterization: How does the patient describe the CC?
- Alleviating and Aggravating factors: What makes the CC better? Worse?
- Radiation: Does the CC move or stay in one location?
- Temporal factor: Is the CC worse (or better) at a certain time of the day?
- Severity: Using a scale of 1 to 10, 1 being the least, 10 being the worst, how does the patient rate the CC?

SOAP Note
Subjective:



History

- Medical history: Pertinent current or past medical conditions
- Surgical history: Try to include the year of the surgery and surgeon if possible.
- Family history: Include pertinent family history. Avoid documenting the medical history of every person in the patient's family.
- Social History: An acronym that may be used here is HEADSS which stands for Home and Environment; Education, Employment, Eating; Activities; Drugs; Sexuality; and Suicide/Depression.

SOAP Note
Subjective:

Review of Systems (ROS)

- This is a system based list of questions that help uncover symptoms not otherwise mentioned by the patient.
- General: Weight loss, decreased appetite
- Gastrointestinal: Abdominal pain, hematochezia
- Musculoskeletal: Toe pain, decreased right shoulder range of motion
- *Current Medications, Allergies*
- Current medications and allergies may be listed under the Subjective or Objective sections. However, it is important that with any medication documented, to include the medication name, dose, route, and how often.
- Example: Motrin 600 mg orally every 4 to 6 hours for 5 days

SOAP Note

Objective:

Objective:

This section documents the objective data from the patient encounter. This includes:

- Vital signs
- Physical exam findings
- Laboratory data
- Imaging results
- Other diagnostic data
- Recognition and review of the documentation of other clinicians.

SOAP Note Assessment:

Problem

- List the problem list in order of importance. A problem is often known as a diagnosis.

Differential Diagnosis

- This is a list of the different possible diagnosis, from most to least likely, and the thought process behind this list. This is where the decision-making process is explained in depth. Included should be the possibility of other diagnoses that may harm the patient, but are less likely.
- Example: Problem 1, Differential Diagnoses, Discussion, Plan for problem 1 (described in the plan below). Repeat for additional problems

SOAP Note Plan:

- This section details the need for additional testing and consultation with other clinicians to address the patient's illnesses. It also addresses any additional steps being taken to treat the patient. This section helps future physicians understand what needs to be done next. For each problem:
- State which testing is needed and the rationale for choosing each test to resolve diagnostic ambiguities; ideally what the next step would be if positive or negative
- Therapy needed (medications)
- Specialist referral(s) or consults
- Patient education, counseling
- A comprehensive SOAP note has to take into account all subjective and objective information, and accurately assess it to create the patient-specific assessment and plan.

SOAP Note Example:

01/01/201X - Pod 1 AM

Room #: 01
Enc. #: 01
Routing #: 1
NBOME ID #: 111111

SOAP Note

0:06

S

George Payne is a 45-year-old Caucasian right handed male who presents to the Family Medicine office with a complaint of right-sided chest discomfort for one week. The pain began after moving into a new house. He denies any injury to his chest. The pain is sharp like a knife and constant, and he rates it 3-4/10. The pain radiates through to the back intermittently. It is relieved with a hot shower, ibuprofen, or lying on his left side, but made worse with lifting boxes and taking deep breaths. He has had heartburn in the past, but says that this pain is different and never had anything like this previously. He is concerned that this could be related to his heart.
ROS: No palpitations, shortness of breath, diaphoresis, nausea, or vomiting
Pmhx: heartburn occasionally
Surghx: tonsillectomy
Meds: Ibuprofen three times a day
ALL: NKDA
Fam Hx: Mother living and in good health, Father died of heart attack at age 60
SocHx: Married with 3 children. No tobacco, 6-pack of beer on weekends occasionally, marijuana in high school. Occupation is a roofer.

O

Vitals: 70 inches 190 lbs 27.3 kg/m2 BMI 132/80 BP 98.4 Temp 80 HR 16 RR
Gen: mildly anxious male in mild distress, occasionally touching R chest wall
Heart: regular, no murmurs, S3 or S4
Lung: clear bilateral anterior and posterior, slight increase in pain with deep breath
T spine: Paravertebral tenderness R T4-8 tenderness
Chest wall: Tenderness with palpation anterior chest wall mid-clavicular line at rib 4

A

1. Thoracic somatic dysfunction
2. Costochondritis
3. Rib fracture-unlikely
4. Anginal equivalent-doubt
5. Family history of heart disease

P

1. OMT: Balanced ligamentous tension technique. Schedule for additional OMT if pain does not resolve
2. NSAIDS/ moist heat
3. X-ray-rib films r/o fracture
4. EKG r/o acute coronary syndrome vs. prior event

SOAP Note Questions

Introduction To Injections

The three main types of injections include:

- Subcutaneous (into the fat layer between the skin and muscle)

- Insulin and some hormones are commonly administered as **subcutaneous injections**. Other **drugs** that need to be **given** very quickly can also be administered via **subcutaneous injection**. Epinephrine comes in an automated injector form, called an EpiPen, that's **used** to quickly treat severe allergic reactions.

- Intramuscular (deep into a muscle)

- Tibiotics- penicillin G benzathine penicillin, streptomycin. Biologicals- immunoglobins, vaccines, and toxoids. Hormonal agents- testosterone, medroxyprogesterone, B12, Kenalog, flu shots,

- Intravenous (through a vein)

- Blood Draw

Subcutaneous Injections

Subcutaneous injections can be given straight in at a **90 degree** angle or at a **45 degree** angle. Give the **injection** at a **90 degree** angle if you can grasp 2 inches of skin between your thumb and first finger. If you can grasp only 1 inch of skin, give the **injection** at a **45 degree** angle.

Intramuscular Injections

- **Intramuscular** (**IM**) I**njections** should be delivered at a 90-degree **angle** either in the deltoid muscle of the upper arm for adults and children ...

Intravenous Injection

- With standard IV administration, a needle is usually inserted into a vein in your wrist, elbow, or the back of your hand / Blood Draw.