NC Department of Health and Human Services
NC Nurse Aide I Curriculum

Module AA
Measurement

July 2024

Objectives

1. Define vital signs and measurement skills nurse aides perform
2. List equipment needed to measure:
   - Temperature
   - Pulse
   - Respirations
   - Blood pressure
   - Height
   - Weight
   - Intake and output of fluids

Objectives

3. Compare and contrast the various thermometers used to measure temperature
4. Label components of equipment used to measure blood pressure, height, and weight
5. Identify normal findings for temperature, pulse, respirations, and blood pressure
6. Locate sites used to measure temperature, pulse, respirations, and blood pressure

Objectives

7. Explain how to use equipment that measures temperature, pulse, respirations, blood pressure, height, weight, intake of fluids and output.
8. Differentiate units of measurement nurse aides use during the care of residents – millimeters of mercury (mmHg), degrees Fahrenheit, ounces, milliliters (mL), cubic centimeters (cc), inches, and feet.
9. Convert ounces to milliliters and inches to feet/inches.

Vital Signs

- Measurable variables that indicate the general state or condition of a person: body temperature, pulse rate, respiratory rate, and blood pressure

- Also called TPR & BP

5th Vital Sign – Pain

- Pain is often considered the 5th vital sign and is as important as other vital signs
- Pain is subjective and is whatever the patient says it is and response varies from patient to patient
- A nurse aide uses a pain scale to identify pain levels and then reports to the nurse
- Refer to Module V for more in-depth information

Why Check Vital Signs?

- Changes can indicate worsening of a resident's condition
- Can reflect response to medication and/or treatment
- Value of a vital sign may be basis for a medication or change of a medication
- Accuracy when taking vital signs is crucial
- Report abnormal vital signs immediately to nurse and per facility policy

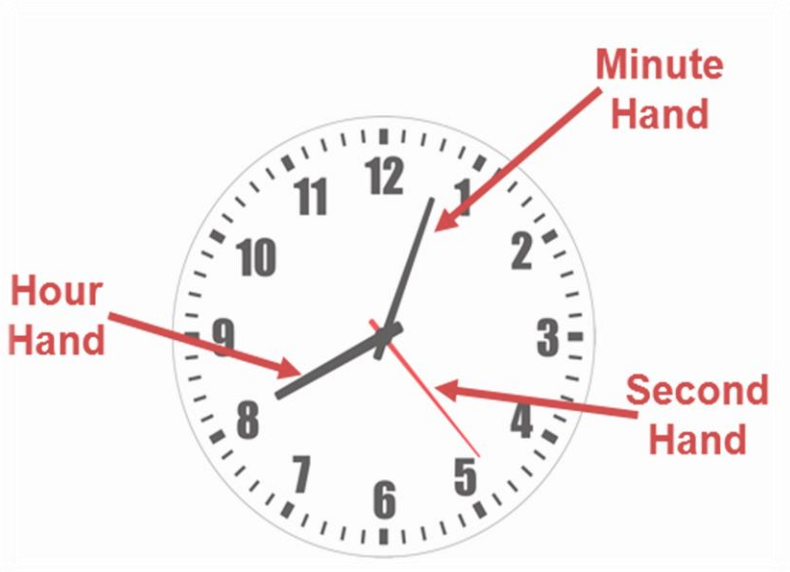
Equipment Needed for Vital Signs

What Is an Analog Watch and Why Is it Included in EQUIPMENT for Vital Signs?

- A watch that has moving hands and is typically marked with numbers 1 – 12
- It has an hour hand, minute hand, and second hand

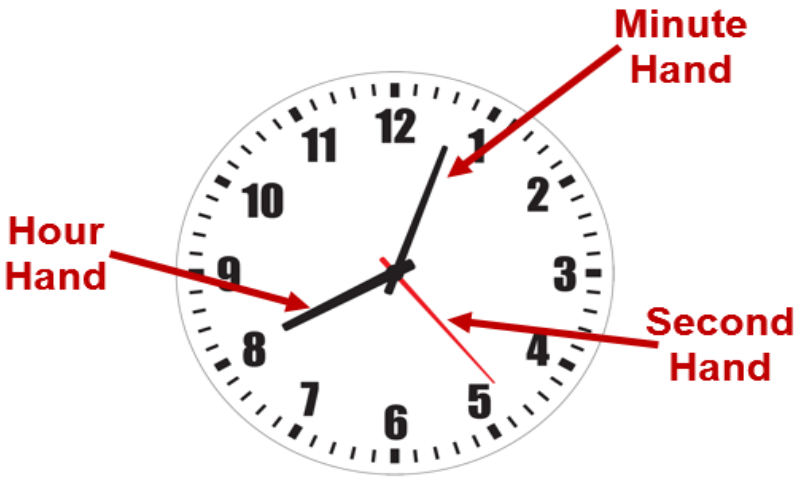
****IMPORTANT****

- **Nurse aides use the second hand to count respirations and pulse rate**

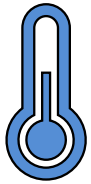


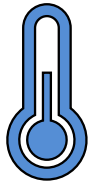
Analog Watch – How to Count for Full 60 Seconds for Respirations and Pulse

- First, identify what number the second hand is on
- Second, while watching the second hand, start counting the vital sign you want to know and stop counting on the same number when secondhand returns to that number
- We will practice once we learn how to check for a pulse and respirations



Body Temperature





Beneficial to identifying issues of the immune system and response to medical treatment.

- Common terminology
  - Fever – elevated temperature
  - Febrile – with a fever
  - Afebrile – without a fever
  - Thermometer – device to measure body temperature
  - Fahrenheit and Centigrade

Factors Affecting Temperature

- Age
- Illness
- Stress
- Environment
- Exercise
- Time of day

Sites for Checking Temperature

- Mouth (oral)
- Rectum (rectal)
- Armpit (axilla)
- Ear (tympanic)
- Temporal (forehead)

<u>Important</u>- Check with nurse or care plan to see what type of thermometer should be used

Types of Thermometers

- Digital – oral, rectal, axillary
- Electronic – oral, rectal, axillary
- Tympanic – ear
- Temporal – forehead
- Non-mercury, liquid-filled glass (oral – green tipped; rectal – red tipped)

Temperature Values

- Oral
  - Baseline – 98.6ºF
  - Normal range – 97.6ºF to 99.6ºF
- Rectal
  - Baseline – 99.6ºF
  - Normal range – 98.6ºF to 100.6ºF
- Axillary
  - Baseline – 97.6ºF
  - Normal range – 96.6ºF to 98.6ºF

Temperature Values

- Tympanic membrane
  - Baseline – 98.6ºF
  - Normal range – 97.6ºF to 99.6ºF
- Temporal
  - Baseline – 98.6ºF
  - Normal range – 97.6ºF to 99.6ºF

Digital Thermometer

- Oral, rectal, or axillary
- Displays results digitally within 2 – 60 seconds; beeps or flashes when done
- Battery-operated
- Requires a disposable sheath

Electronic Thermometer

- Oral, rectal, or axillary
- Has oral/axillary and rectal probes; requires probe cover
- Displays results digitally 2 – 60 seconds; beeps or flashes when done
- Battery-operated; stored in recharging device
- Requires a probe cover

Tympanic Thermometer

- Ear
- Registers temperature in seconds

Temporal Thermometer

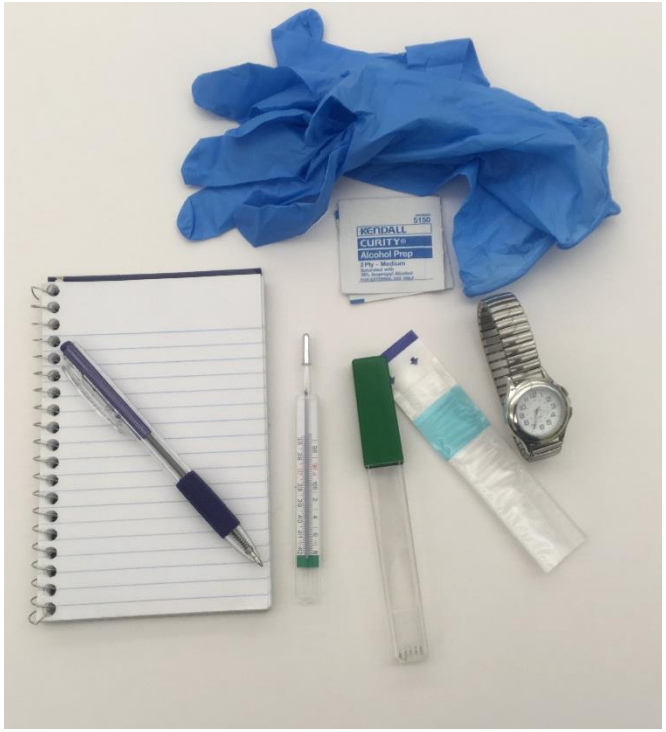
- Measures heat from skin over the forehead, specifically over temporal artery
- Done by a stroke or scan over the area
- Registers within 3 seconds
- Noninvasive

Non-mercury, Liquid-filled Glass Thermometer

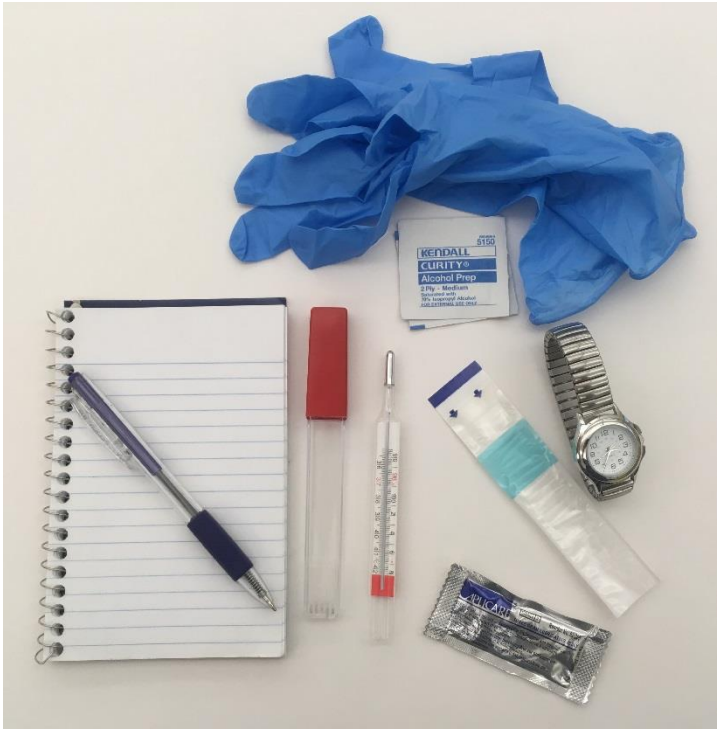
- Oral, rectal, or axillary
- Color-coded; blue or green for oral; red for rectal
- Takes a longer time to register
- Nurse aide must read at eye level after it registers temperature; held at stem
- Most use Fahrenheit scale to measure temperature

Using a Non-mercury, Liquid-filled Glass Thermometer to Check Body Temperature

Oral



Rectal

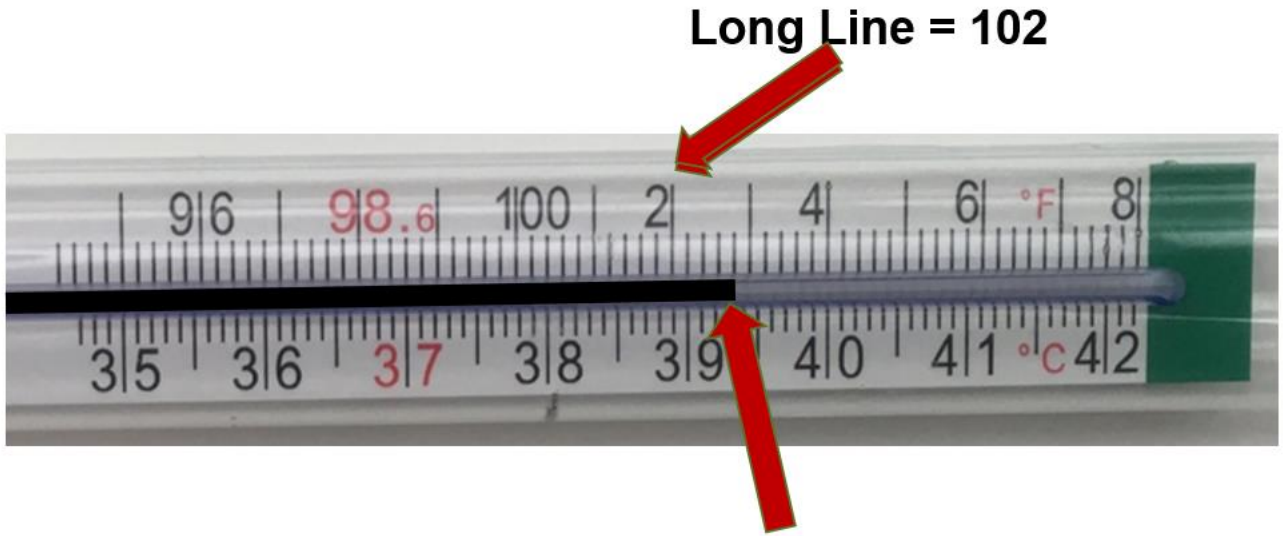


Reading a Non-mercury, Liquid-filled Glass Thermometer

- **For Fahrenheit readings (the top numbers):**
  - The long line represents 1 degree
  - The short line represents two tenths (2/10) of 1 degree

Example of an Oral Temperature Reading

Temperature = 102.8°



When NOT to Take an Oral Temperature

- Unconscious
- Recent facial/mouth surgery
- Recent injury to face
- Sores/redness/mouth pain

- Confused/agitated
- History of seizure
- Using oxygen
- Mouth-breather
- Feeding tube

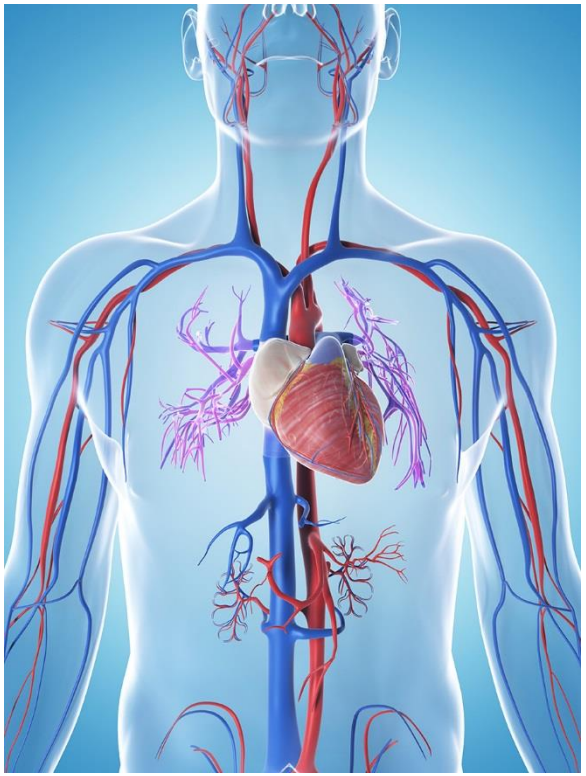
When NOT to Take a Rectal Temperature

- Has diarrhea
- Has rectal problem
- Has heart disease
- Recent rectal surgery
- Is confused or agitated

Pulse

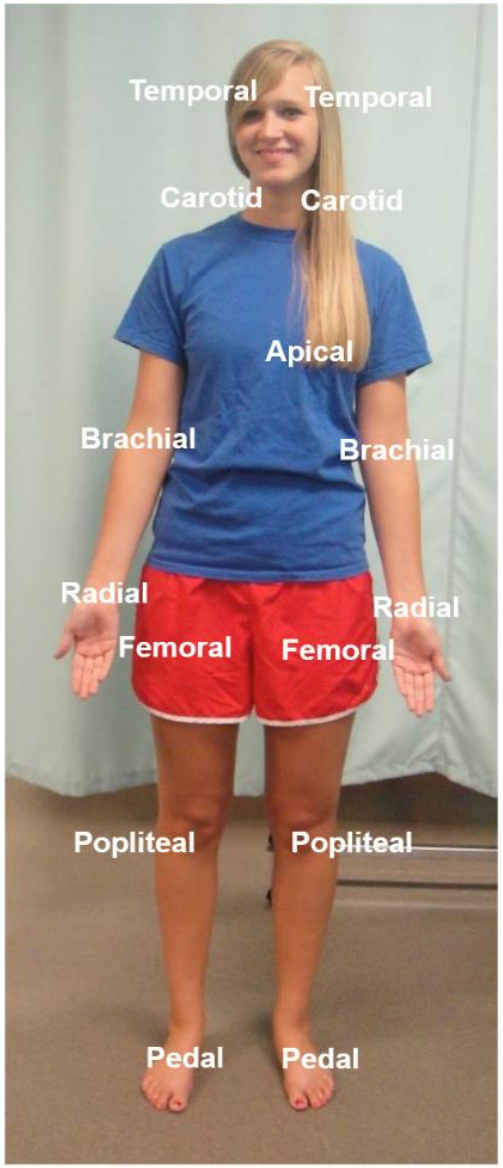
The beat of the heart felt at an artery, as a wave of blood passes through the artery

- Pulse rate
- Pulse rhythm
- Pulse force



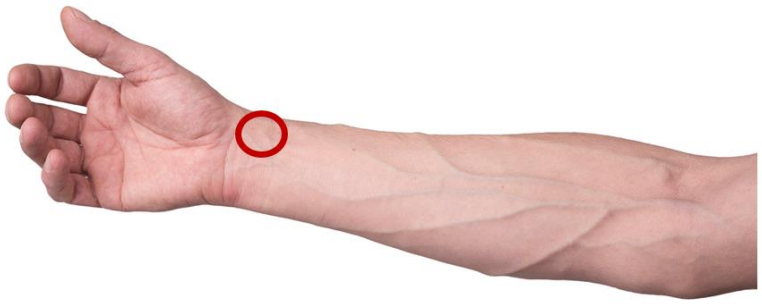
Pulse Sites

- Temporal
- Carotid
- Apical
- Brachial
- Radial
- Pedal



Radial Pulse Site

- Typically used to take pulse during routine vital signs checks
- Does not expose resident
- Located on thumb side of wrist
- Nurse aide places their first 2 or 3 fingers (never thumb) over the radial pulse



Pulse Values

- Normal between 60 and 100 beats per minute
- Regular
- Strong
- Refer to Module H for abnormalities

Counting Pulse – Equipment

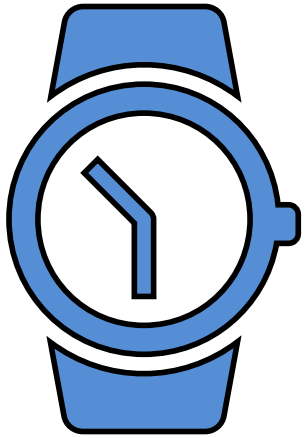
- Analog watch with second hand
- Notepad and pen

Checking Pulse and Documentation

- Nurse aide counts pulse rate for 60 seconds
- While watching second hand of watch, the nurse aide starts and stops counting on same number
- Document on record if pulse is normal
- Document on record and notify nurse if pulse is abnormal

Checking Pulse – Example #1

- Nurse aide begins counting pulse rate when second hand is on 4 and stops counting pulse rate when the secondhand lands on _____
- Nurse aide counts a pulse rate of 82 in 60 seconds
- 82 is the number the nurse aide would document



Checking Pulse – Example #2

- Nurse aide begins counting pulse rate when the second hand is on 10 and stops counting pulse rate when the second hand lands on _____
- Nurse aide counts a pulse rate of 109 in 60 seconds
- 109 is the number the nurse aide would document
- Nurse aide would notify the nurse; why?

Respiration

- Process that supplies oxygen to cells and removes carbon dioxide from cells
- Involves
  - Inspiration (inhalation) – breathing in oxygen; chest rises
  - Expiration (exhalation) – breathing out carbon dioxide; chest falls
- Each respiration = 1 inspiration and 1 expiration
- Respiratory rate (or respirations) – the number of inspirations/exhalations a person takes in a minute

Respiration Values

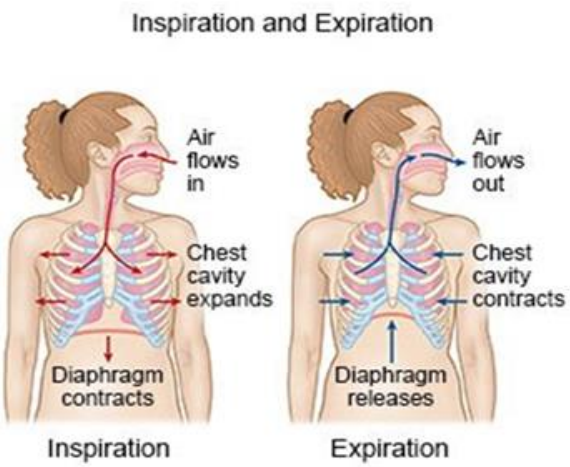
- Normal breathing is defined as eupnea
- Between 12 and 20 breaths/minute
- Regular
- Quiet
- Both sides of chest equal
- For abnormalities refer to Module H

Counting Respirations – Equipment

- Analog watch with second hand
- Notepad and pen

Observation and Documentation

- Nurse aide counts respirations for 60 seconds
- 1 respiration = 1 inspiration (chest rising) and 1 expiration (chest falling)



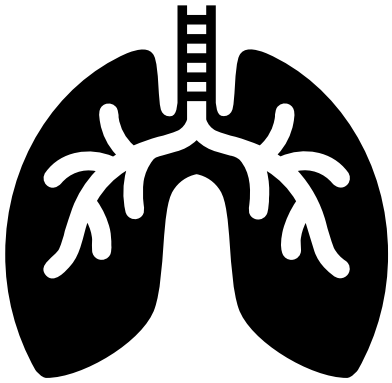
- While watching second hand of watch, nurse aide starts and stops counting on same number
- Document on record if respirations are normal
- Document on record and notify nurse if respirations are abnormal

Stealth Respirations

- Merriam Webster Dictionary defines stealth as “a cautious, unobtrusive, and secretive way of moving or proceeding intended to avoid detection”
- Check respirations right after checking pulse (without moving hand from wrist)
- Why? The patient doesn’t change their breathing pattern, and the results are more accurate when they do not know their breathing pattern is being observed

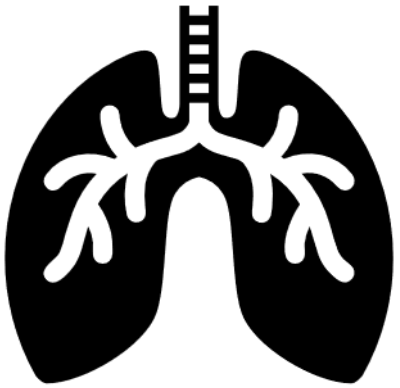
Checking Respirations – Example #1

- Nurse aide begins counting respirations when the second hand is on 4 and stops counting respirations when the secondhand lands on _____
- Nurse aide counts 16 chest rises/falls in 60 seconds
- 16 is the number the nurse aide would document

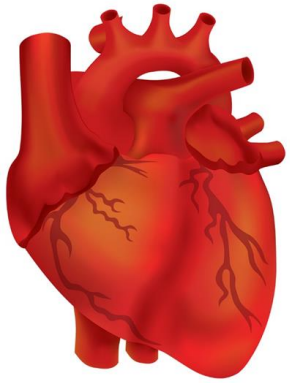


Checking Respirations – Example #2

- Nurse aide begins counting respirations when the second hand is on 10 and stops counting respirations when the second hand lands on _____
- Nurse aide counts 24 chest rises/falls in 60 seconds
- 24 is the number the nurse aide would document
- Nurse aide would notify the nurse; why?



Blood Pressure



- The amount of force exerted by the blood against the walls of the artery
- Top number is the systolic pressure; the pressure when the heart contracts and pumps blood out
- Bottom number is the diastolic pressure; when the heart rests as the heart fills with blood

Blood Pressure

- Important indicator of health status; shows how well the heart is working
- Can change from minute to minute depending on:
  - Activity of the resident
  - Lifestyle choices
  - Reaction to stress
  - Acute injury or emergency
  - Medications

Factors that Affect Blood Pressure

- Genetics
- Age
- Gender
- Race

Blood Pressure Site

- Upper arm for placement of cuff
- Brachial artery for placement of stethoscope

The Blood Pressure Value

- Measured in millimeters of mercury (mmHg)
- Recorded as a fraction
- Pronounced as 120 over 80

$$\frac{120}{80}$$ (systolic) (diastolic)

Normal Blood Pressure Ranges

American Heart Association defines normal blood pressure as less than 120/80

- Systolic – Less than 120 mm Hg
- Diastolic – Less than 80 mm Hg
- Document on record
- If above 120/80, document on the record and notify the nurse
- Refer to Module H for abnormalities

Using What You Have Learned

Evaluate the health of individuals on the next 3 slides

Example #1

- BP = 116/72
- A 64-year-old female
- Weighs 130 pounds
- She has finished baking an apple pie
- She doesn’t smoke or drink

Example #2

- BP = 162/86
- A 72-year-old male
- Weighs 260 pounds

- He just ate a couple of hot dogs and potato chips for lunch and is on his 4th beer
- He just sent his son to the store for more cigarettes

Example #3

- BP = 180/94
- A 22-year-old male
- Weighs 170 pounds

- He just wrecked his brand new truck
- He has a broken leg
- He is on a stretcher in the back of an ambulance

Checking Blood Pressure

The nurse aide uses 3 senses when checking a blood pressure

- Seeing – watches needle's movement in relation to numbers on the manometer
- Hearing – uses the stethoscope to listen for changes in blood flow in the brachial artery
- Touching – controls inflation and deflation of cuff using thumb and index finger

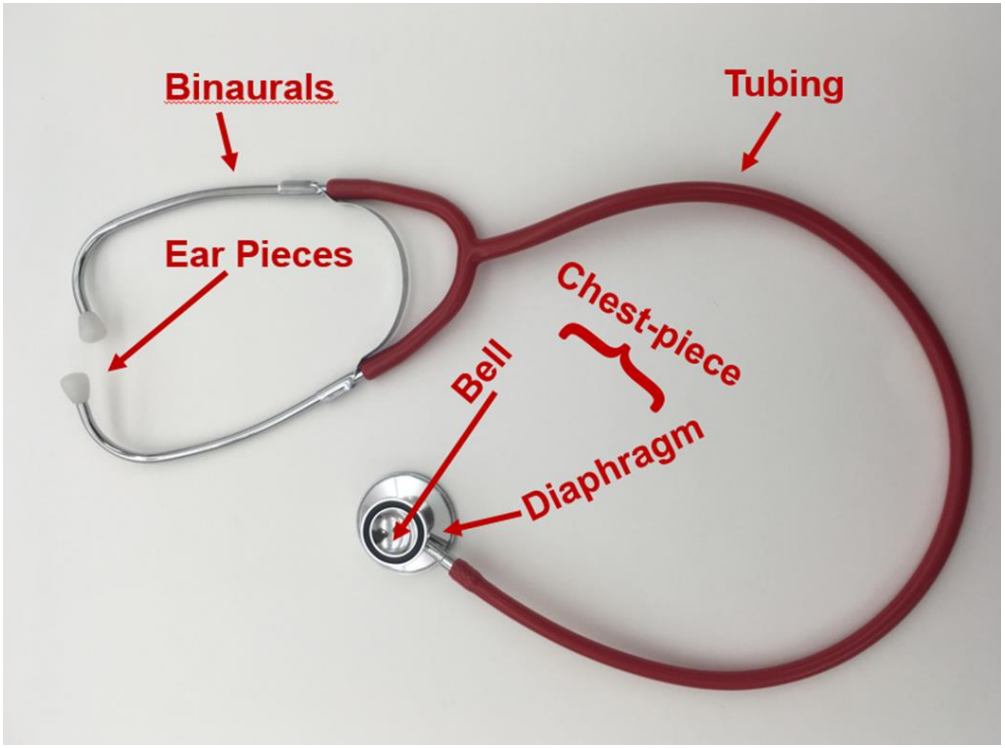
Checking Blood Pressure – Equipment

- Stethoscope
- Sphygmomanometer, also known as blood pressure cuff (BP cuff)
- Alcohol wipes
- Notepad and pen

Stethoscope

- Instrument used to listen to heart and lung sounds
- For blood pressure checks, used to listen to sounds in brachial artery
- May be single-head (with diaphragm only) or dual-head (with diaphragm and bell)

Stethoscope – Parts

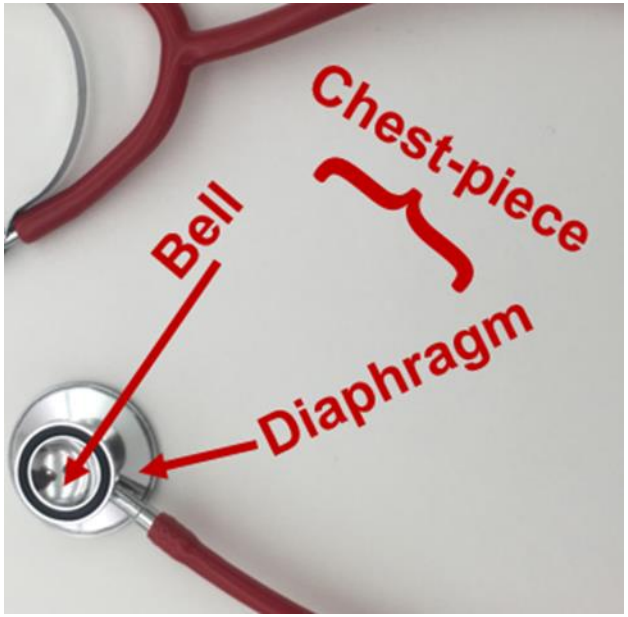


Stethoscope – Ear Pieces

- Always clean before and after use with alcohol wipes
- Insert ear pieces into ears so they point forward toward the nose
- Should fit snugly in ears

Dual-head Stethoscope – Diaphragm

Before using dual-head stethoscope to take blood pressure, determine which side of chest-piece is active; to check blood pressure, diaphragm needs to be active



Two Ways to Check for Active Diaphragm

1. After inserting earpieces into ears, tap diaphragm lightly to determine if tap is heard; if tap not heard, rotate chest-piece at tubing, and repeat the tap.
2. If chest-piece has an indicator dot, rotate chest-piece so indicator dot is closed.

Diaphragm Concepts

- Always clean diaphragm with alcohol wipes
- Warm diaphragm before making contact with resident
- To use diaphragm, apply enough pressure to make seal against brachial artery

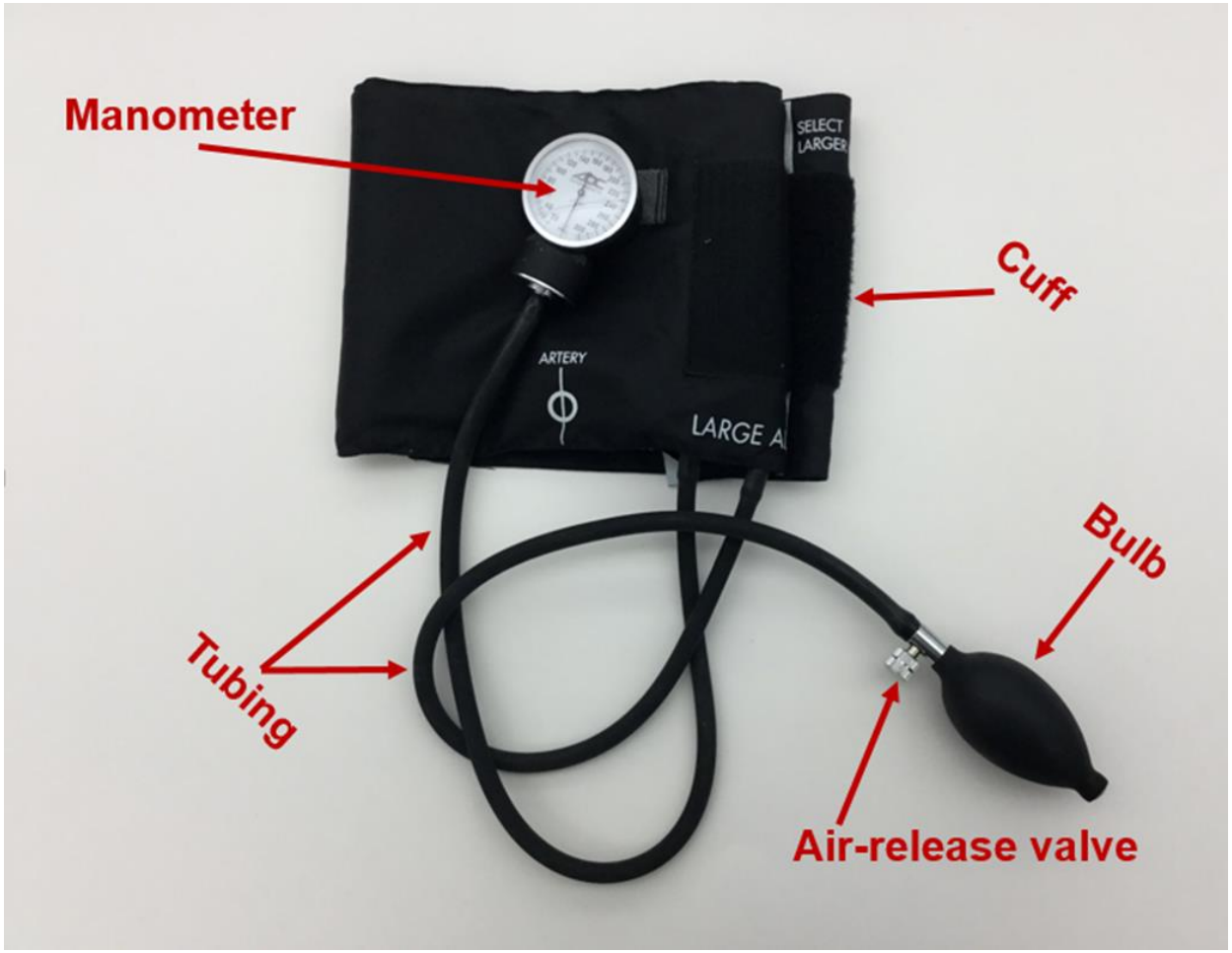
Blood Pressure Cuff – 2 Types

- Electronic (Digital)
- Manual (Aneroid)

Electronic (Digital)

- No stethoscope needed
- After BP cuff is placed on arm, button is pressed causing cuff to inflate/deflate automatically
- BP reading is displayed

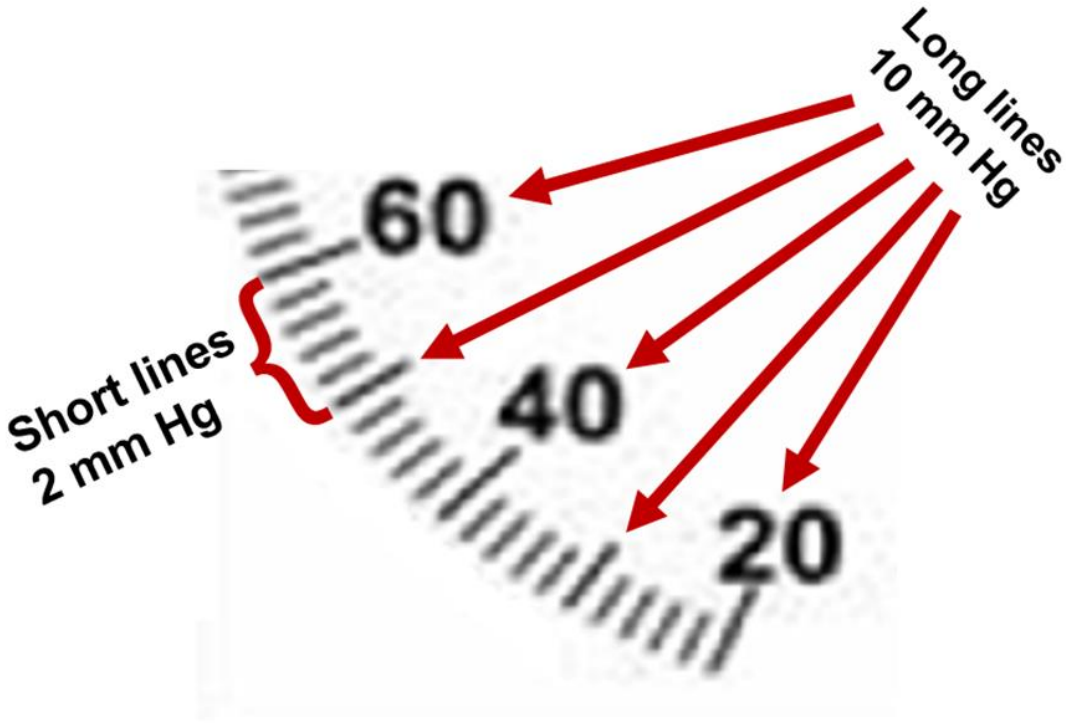
Aneroid BP Cuff – Parts



Manometer

- Marked with long and short lines and has a needle
- Long lines mark 10 mm Hg
- Short lines mark 2 mm Hg

Manometer

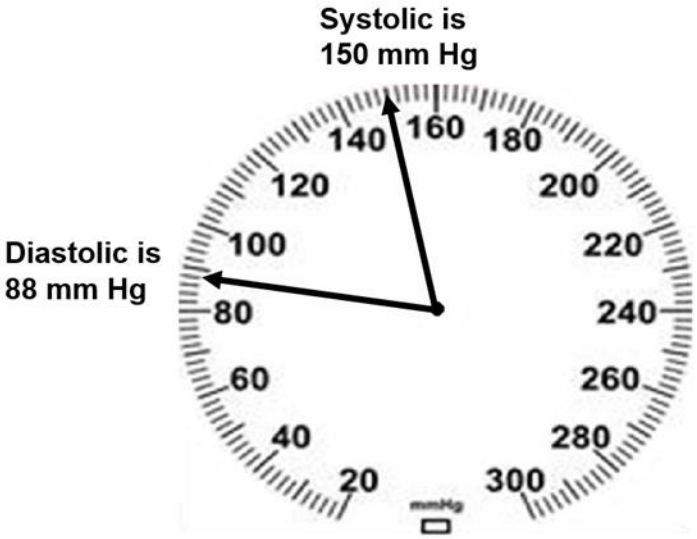


Manometer

When checking blood pressure, the needle drops from a higher number to a lower number, so nurse aide will be counting backwards

Example of Blood Pressure Reading

- Systolic is 150 mm Hg
- Diastolic is 88 mm Hg
- BP is written down as 150/88
- BP is pronounced as “150 over 88”



Cuff

- After wrapping the cuff around the bare upper arm
- The cuff inflates and puts pressure on the brachial artery
- As cuff deflates, BP is determined

Cuff

- Cuff sizes come in child, small, regular, and extra-large
- Important to choose correct size

Cuff

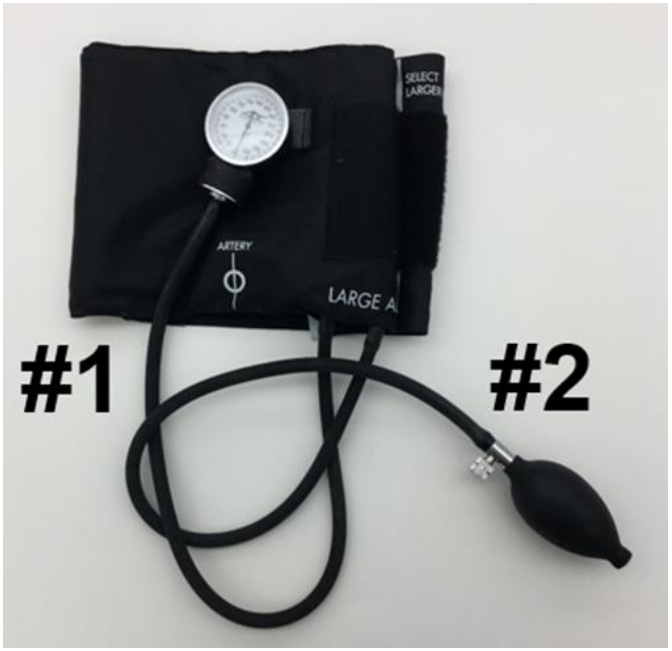
- Typically has 1 or 2 arrows (left arm/right arm) on cuff which align with brachial artery
- Cuff positioned/wrapped at least an inch above the elbow
- Cuff or stethoscope should not be placed over clothing

Tubing

- Made of rubber
- Two tubes connect the:

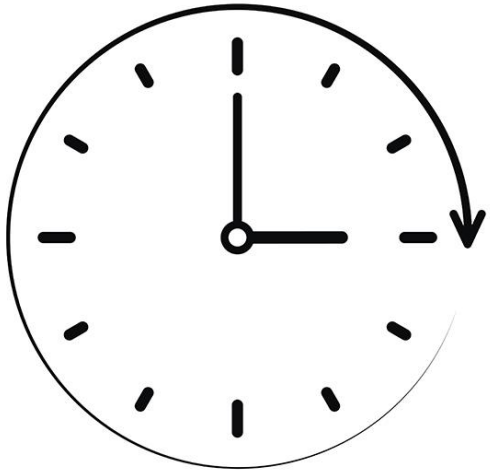
  (#1) Cuff to the manometer and

  (#2) Cuff to the handheld inflation bulb



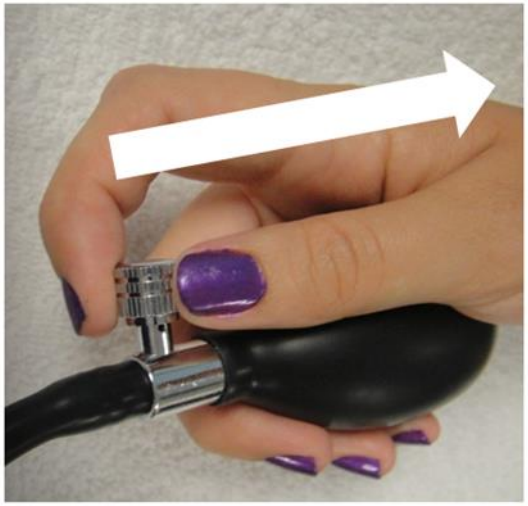
Inflation Bulb with Air-release Valve

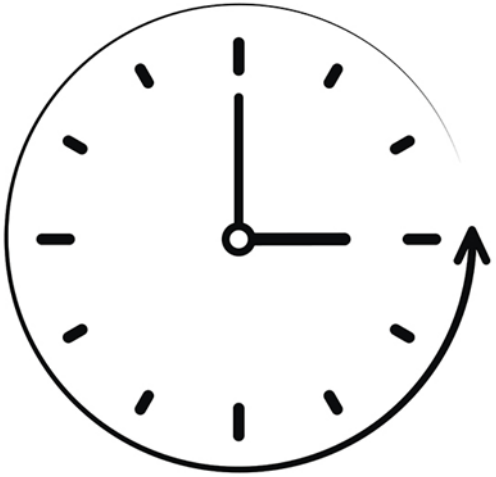
To inflate cuff, turn air-release valve clockwise to close valve; then squeeze the bulb; remember thumb goes up, needle goes up



Inflation Bulb with Air-release Valve

To deflate cuff and open valve, turn air-release valve counterclockwise with the thumb and index finger in a slow and controlled manner; remember thumb goes down, needle goes down



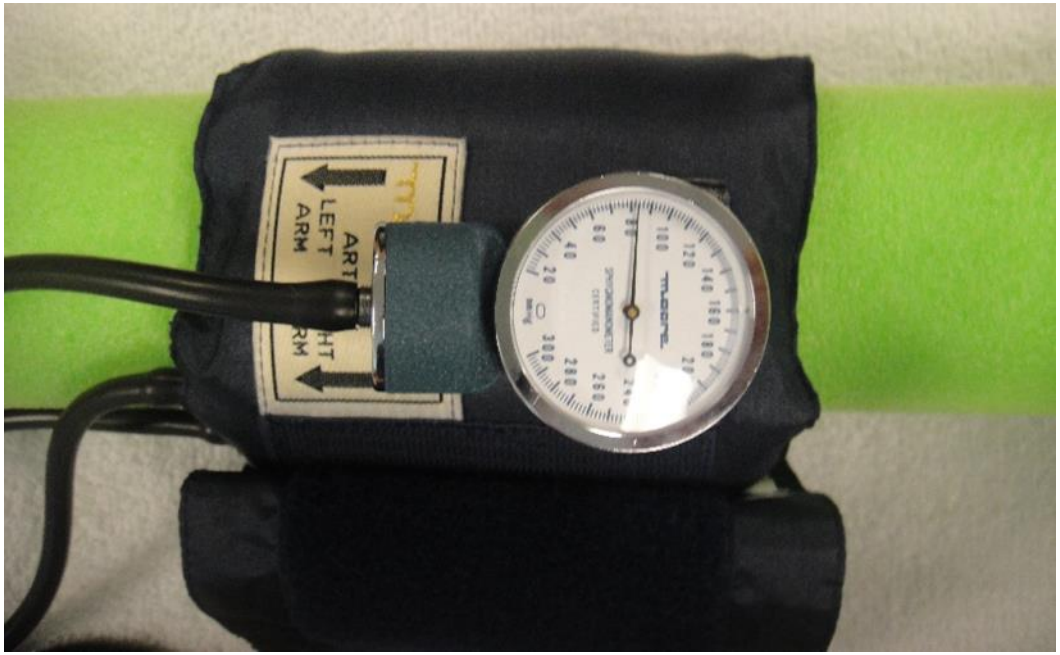


Inflation Bulb with Air-release Valve

- Inflate cuff to between 160 mm Hg to 180 mmHg
- If beat is heard immediately, deflate the cuff; wait 30 – 60 seconds; inflate cuff to no more than 200 mmHg

Inflation Bulb with Air-release Valve

Goal: Learn how to inflate the cuff and how to deflate the cuff in a slow, controlled manner



Blood Pressure – Tips During Procedure

- Do not take blood pressure on an arm with an IV, dialysis shunt, or another medical device
- Avoid taking blood pressure on a side that has been injured, burned, paralyzed, has a cast, or has had a mastectomy

- Do not place the blood pressure cuff over clothing
- Make sure resident has an empty bladder
- Limit conversation
- Support the arm at heart level
- Make sure back is supported
- Make sure legs are not crossed

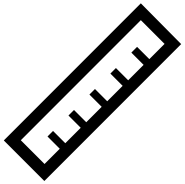
Checking for Orthostatic Hypotension

- Blood pressure is abnormally low
- BP checked while lying down, record on notepad
- Have resident sit up, wait 2 minutes, check BP, record on notepad
- Have resident stand up, wait 2 minutes, check BP, record on notepad
- Throughout process, check to see if resident is feeling weak, dizzy, faint, or seeing spots
- Record and report to nurse

Height and Weight– Overview

- Height and weight measured on admission to the facility

- Units of measure per facility policy
  - Height may be measured using feet and inches or just inches
  - Weight may be measured in pounds or kilograms
- After admission

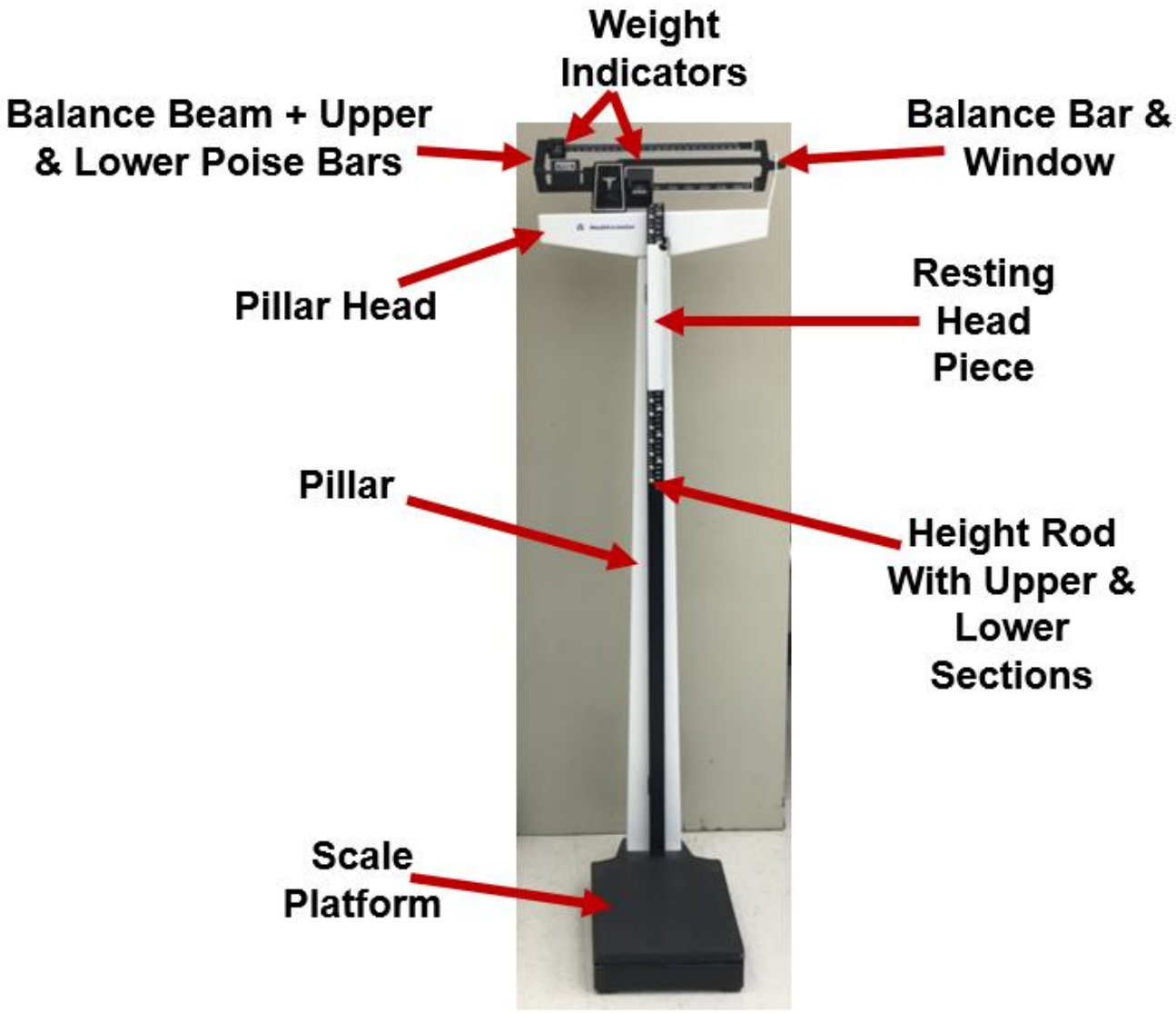


  - Height typically not measured again
  - Weight measured per facility policy and/or doctor's orders as directed by nurse and care plan – daily, weekly, monthly

Physician Mechanical Beam Scale

- Used for measuring height and weight
- For residents who cannot stand, measure
  - Height in bed using tape measure and ruler
  - Weight using a chair, wheelchair, bed, or mechanical lift, as directed by nurse or care plan

Physician Mechanical Beam Scale

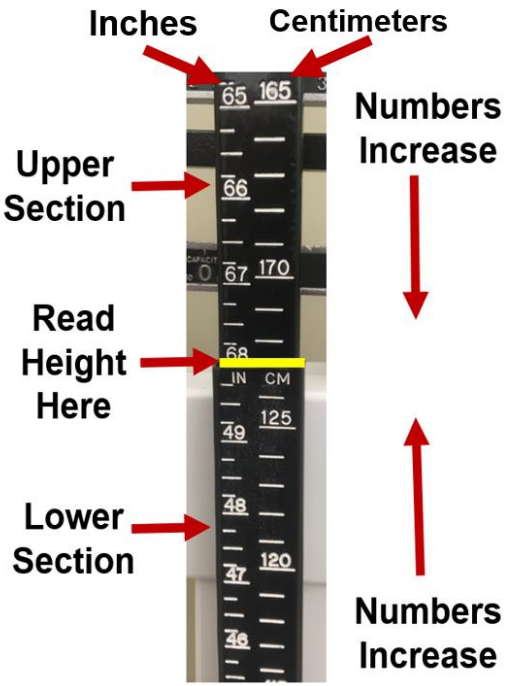


Height Component – Head Piece

- Becomes active when extended upward in preparation for measuring resident's height
- Lowered and placed on resident's head and height measured
- Becomes at rest when flat and low against height rod

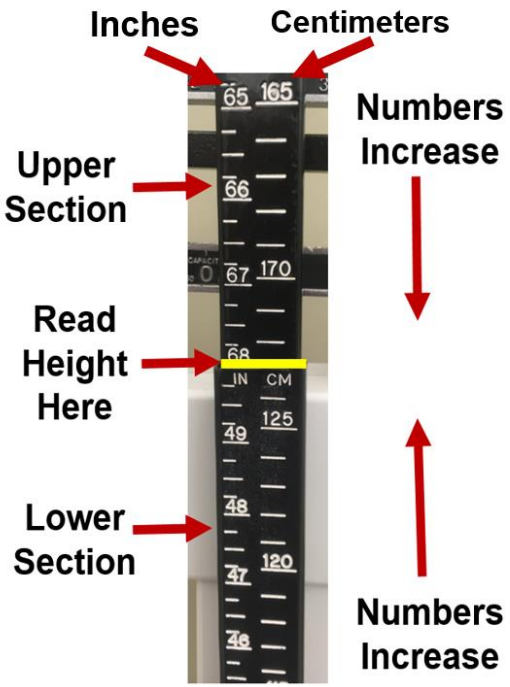
Height Component – Rod

- 2 Units of measure
  - Inches
  - Centimeters
- 2 sections
  - Movable upper section
  - Non-movable lower section



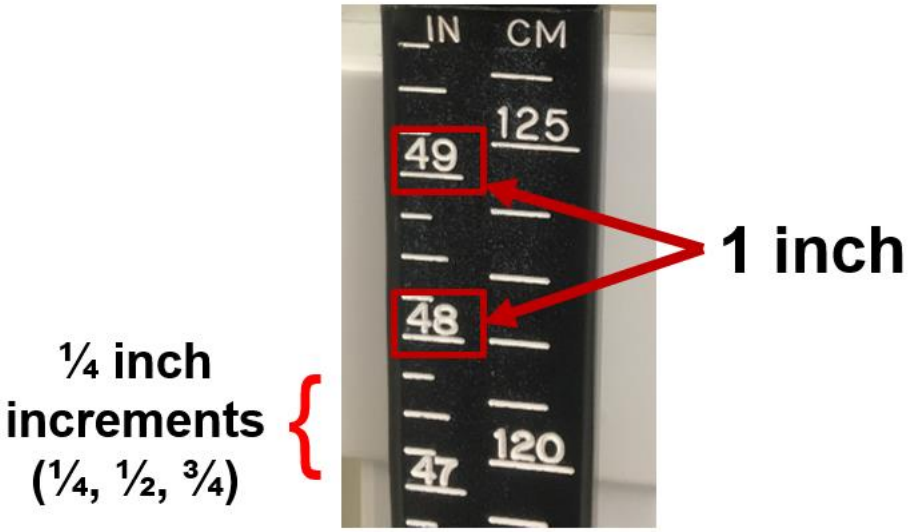
Height Component – Rod

- Movable upper section
  - Raised or lowered to adjust to resident's height
  - "Read height here" area is the location of the height value if resident's height is located in this section
  - Numbers increase from top to bottom
- Non-movable lower section
  - Height read in lower section if resident's height is located in this area
  - Numbers increase from bottom to top



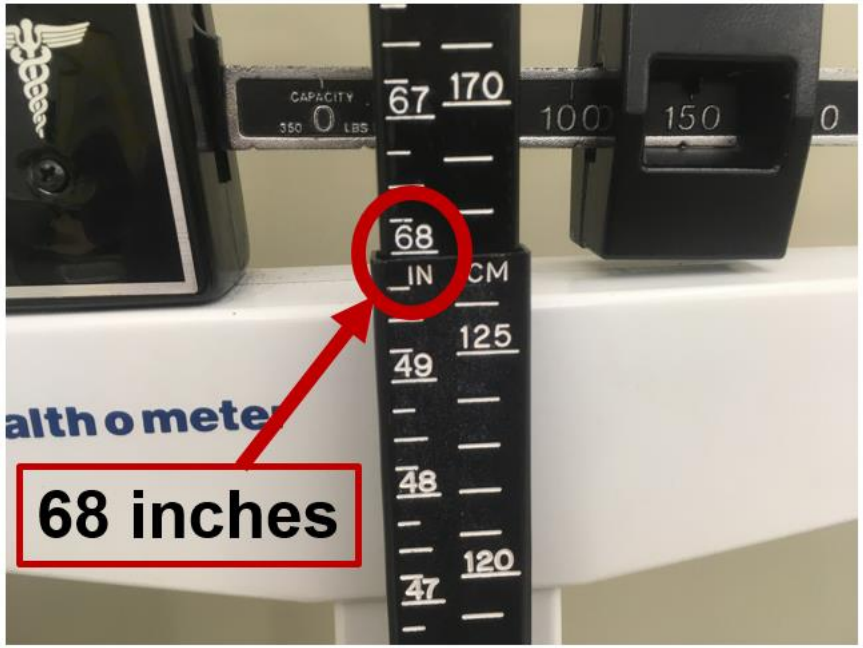
Measuring the Height

- When measuring in feet and inches using height rod
  - Long lines represent inches
  - Shorter lines represent ¼ inch each; increments include ¼, ½, ¾
- Read height to the nearest ¼ inch



Measuring the Height

How tall is the resident?

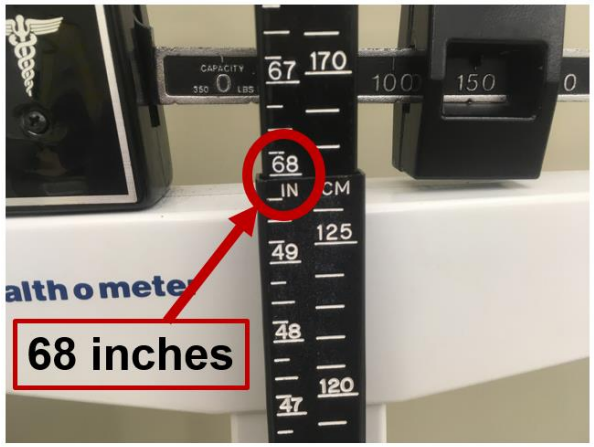


Converting Inches into Feet/Inches

- To convert inches to feet and inches
  - Divide the number of inches by 12
  - The quotient is the feet and the remainder of inches

Height in Feet and Inches

- Resident's height is 68 inches
- How does the nurse aide convert 68 inches to feet and inches?
  - 1 foot = 12 inches
  - Divide 68 inches by 12 inches
  - Quotient = 5, remainder = 8
  - Answer = 5 feet, 8 inches



- **Resident's height is 68 inches or 5 feet, 8 inches**

Weights of Residents in Long-term Care

- In general, standards of practice recommend weighing resident on admission/readmission, weekly for first 4 weeks after admission, and at least monthly thereafter
- Crucial that weight is obtained accurately and consistently
  - Facility-wide scales should be calibrated and functioning appropriately
  - A consistent process for weighing residents should be in place

Weights – Consistent Process

Weigh the resident:

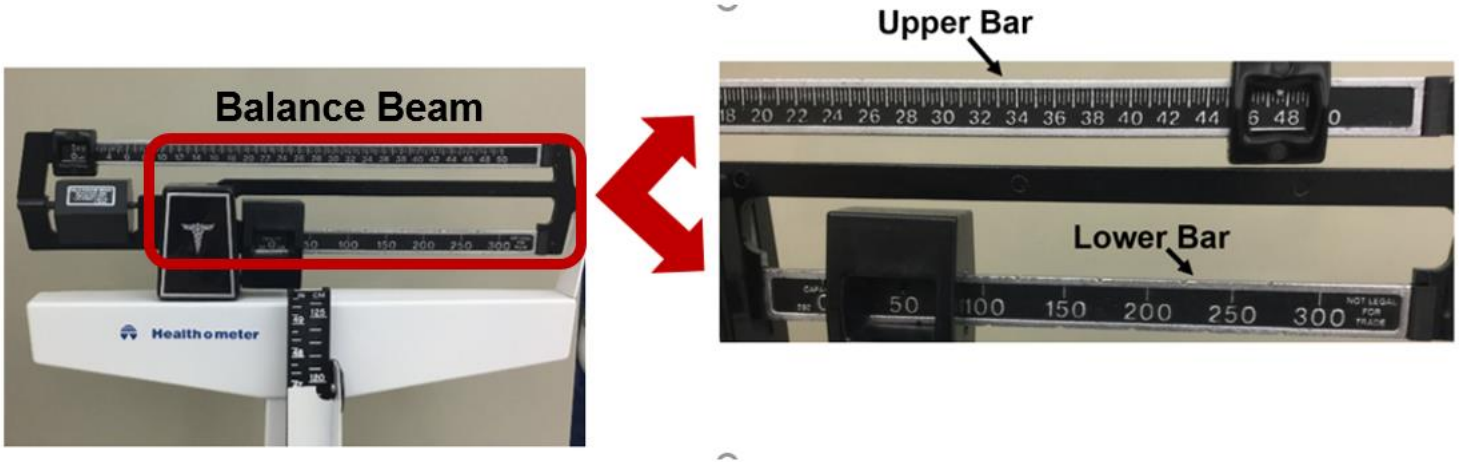
- Wearing a similar type of clothing
- At approximately the same time of the day (preferably before breakfast)
- Using the same scale
- Either consistently wearing or not wearing orthotics or prostheses

Accurate Weights – Importance

- Weight is a parameter that reflect resident's nutritional status
- Fluid loss or retention can cause short-term weight changes; abrupt weight changes along with change in food intake are signs of fluid and electrolyte imbalance
- Weight loss may be important indicator of a change in resident's health status or sign of malnourishment
- If significant weight loss noted, health care team reviews for possible causes

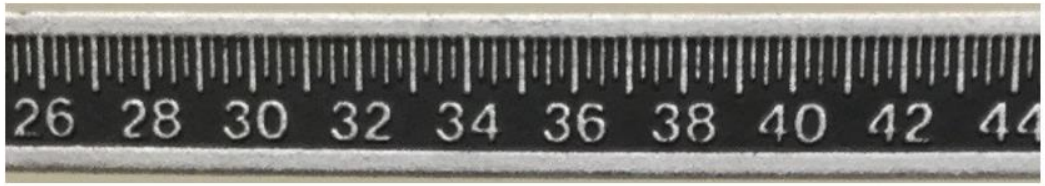
Weight Component- Balance Beam

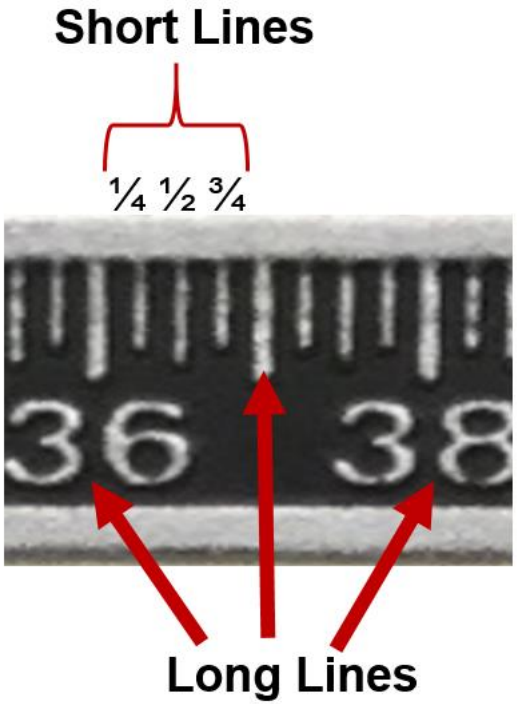
- Has 2 poise bars – upper and lower
- May include pounds only or pounds on the top part of each bar and kilograms on the bottom part of each bar; may have interchangeable pound and kilogram bars



Upper Poise Bar

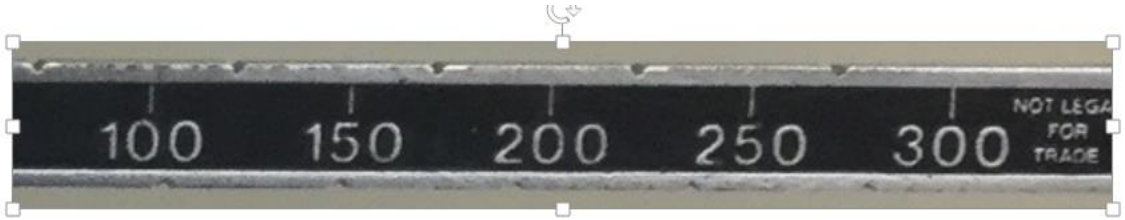
- Long lines represent pounds
- Short lines represent ¼ pounds each; increments include ¼, ½, ¾





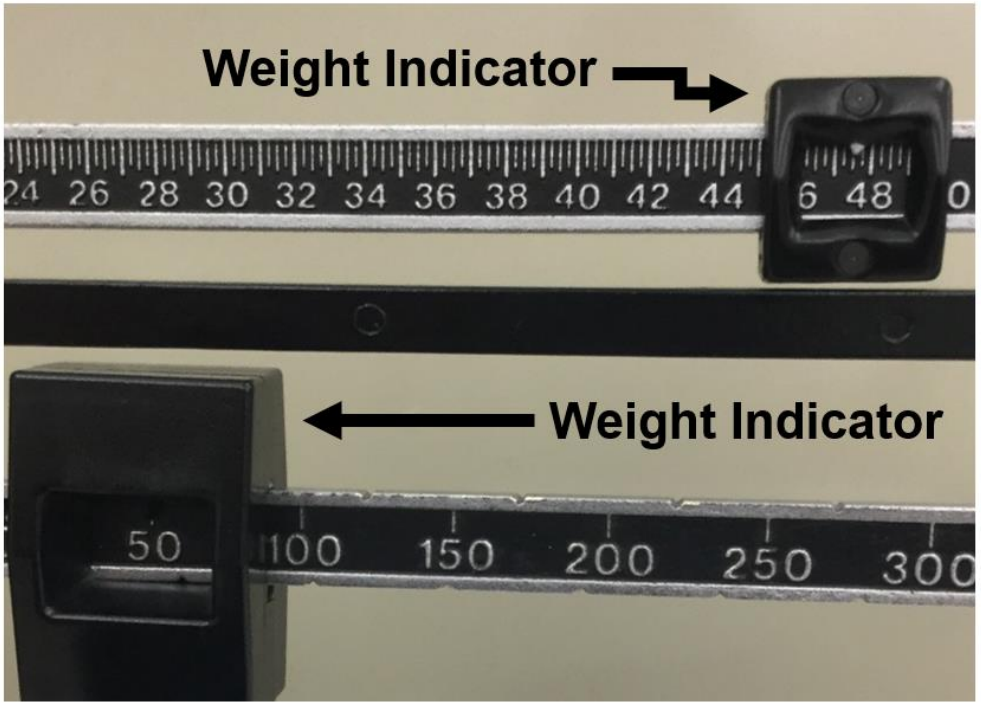
Lower Poise Bar

- Single lines represent increments of 50 pounds
- Grooves located along the top of the lower bar align with weight increments



Weight Indicators

- Both upper and lower bars have movable weight indicators
- The weight indicator for the lower bar fits into the groove as weight is obtained



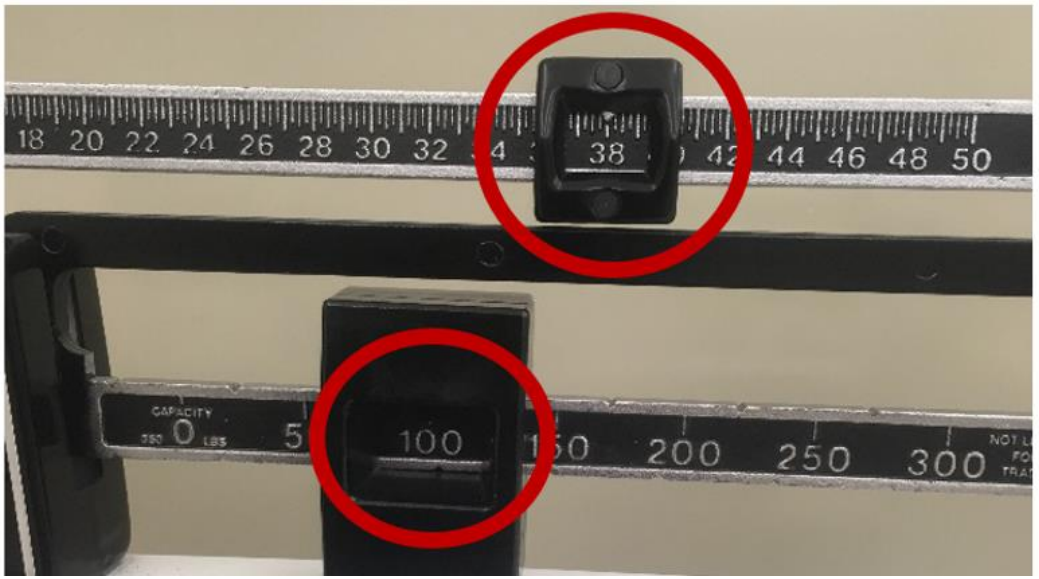
Balance Bar and Balance Window

- Ensure balance bar floats freely and in center of window when poise bars are set on 0 (zero) and resident is not standing on scale platform
- If balance bar is off-center and/or touching window, do not weigh resident and notify nurse

Reading the Weight

100 pounds + 38 pounds = 138 pounds

To determine weight, add the value for the lower bar to the value for the upper bar.

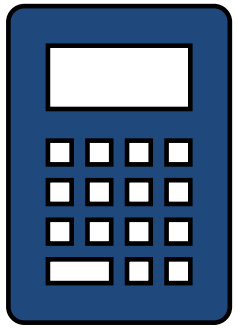


Measuring Intake and Output (I&O)

- Intake (also called input) – the amount of fluid taken in by the body
- Output – the amount of fluid lost from the body
- Intake and output are typically seen together and commonly abbreviated I&O
- For fluid balance to occur fluid intake roughly equals fluid output

Intake and Output

- Ordered by the doctor, found on the care plan, and by the directive from the nurse
- Typically calculated at end of each shift and totaled every 24-hours
- Documented on a facility-specific form
- Calculations and totals based on the milliliter (mL)



Milliliter (mL)

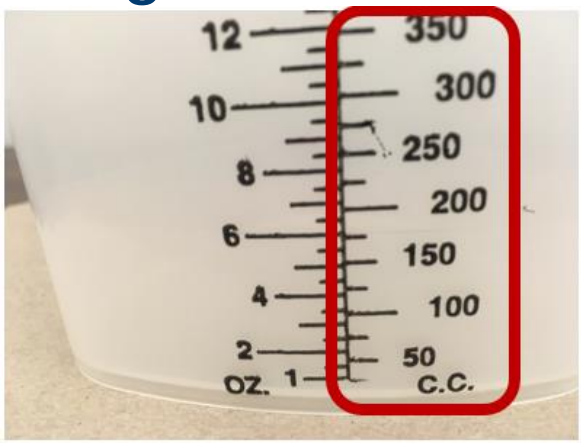
- A unit of measure in the metric system
- Fluids measured using the milliliter (mL)
- Another unit of measure used in health care is called the cubic centimeter (cc); should use mL instead of cc when documenting fluids
- 1 milliliter is equal to 1 cubic centimeter
- Most people familiar with the teaspoon; there are 5 mL or 5 cc in a teaspoon

Graduate

- Accurate measuring device for fluids when resident is on I&O
- Fluid for I&O is measured and documented in milliliters (mL)
- Measure fluid at eye-level on a flat surface
- If both intake and output to be measured with the graduate, two separate graduates used and labeled

Units of Measure for the Graduate

- The cc (cubic centimeter) side of the measurement scale is used in health care
- Recall 1 cc on the graduate = 1 milliliter (mL)



Shortest line represents either 25 cc/mL or 75 cc/mL

Longest lines represent multiples of 50 cc/mL

Fluids Considered as Intake

- Liquids the resident drinks
- Semi-liquid foods the resident eats
- Other fluids including intravenous (IV) fluids and tube feedings the nurse is responsible for maintaining and measuring

Fluids – Liquids

- Water
- Milk
- Coffee
- Tea
- Juices
- Soups
- Soft drinks

Fluids – Semi-liquid Foods

- Milkshakes
- Ice cream
- Sherbet
- Custard
- Pudding
- Gelatin
- Popsicles

Determining Oral Fluids as Intake

- To determine intake, nurse aide must know serving sizes of facility specific containers
- Two methods
  - Measures
  - Using fractions
- Follow facility policy and/or procedure when determining intake of fluids during and between meals

Typical Serving Sizes of Liquids

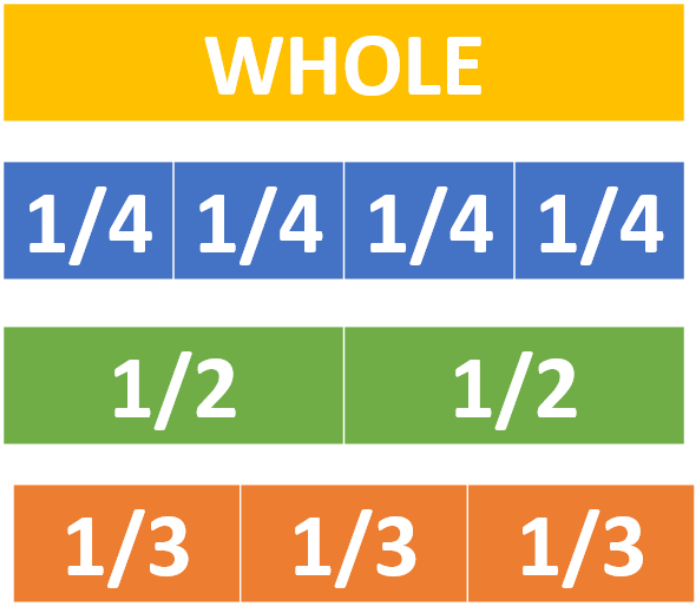
- Water glass = 240 mL
- Tea glass = 180 mL
- Juice glass = 120 mL
- Milk carton = 240 mL
- Coffee cup = 240 mL
- Soft drink can = 360 mL
- Gelatin = 120 mL
- Soup bowl = 180 mL

Determining Intake - Example

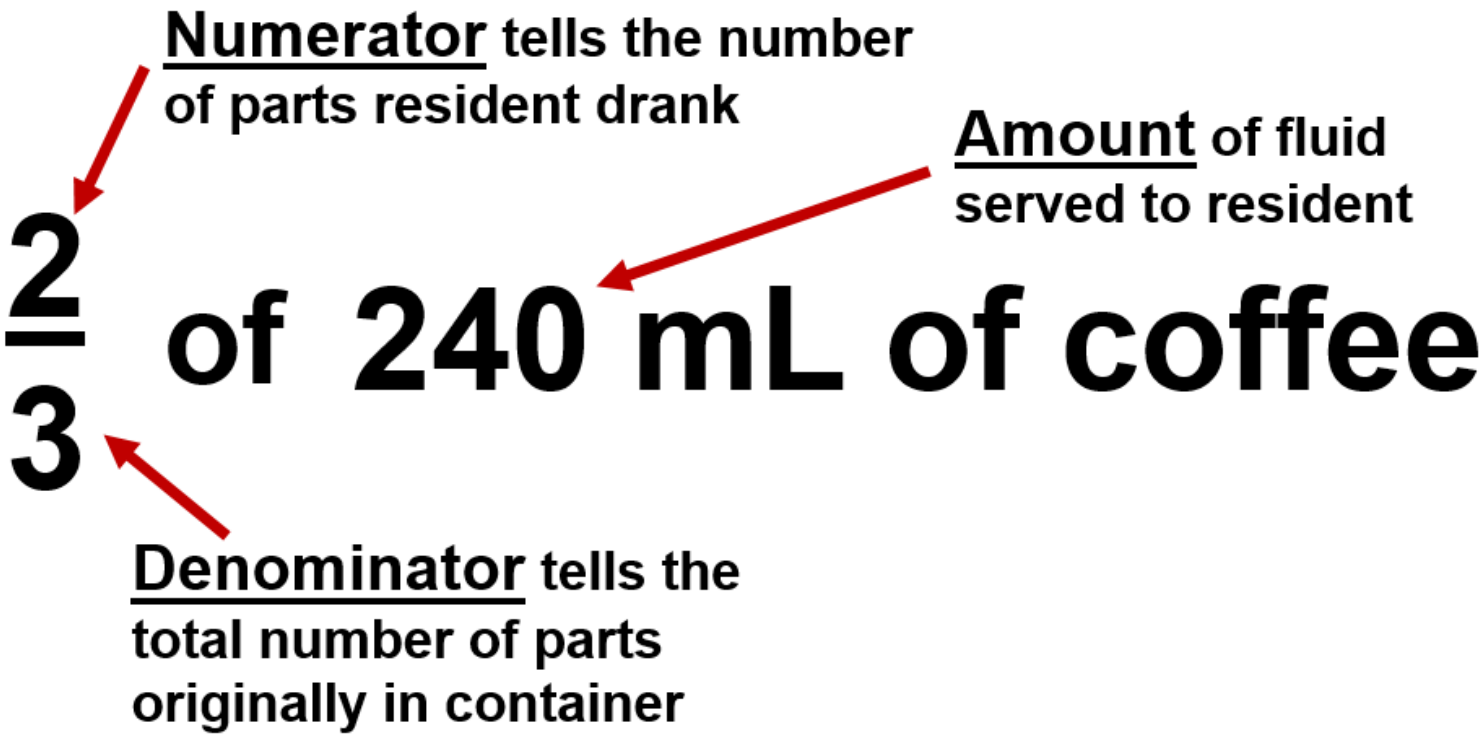
- The glass with the resident's apple juice holds 240 mL of fluid
- Using the graduate and measuring apple juice left in glass, the resident did not drink 120 mL of apple juice
- Subtracting 120 mL of apple juice the resident didn't drink from number of mL the glass holds
- Resident drank 120 mL of apple juice

Determining Intake Using Fractions

- To determine fluid intake using fractions, the nurse aide needs a basic understanding of fractions in relation to a whole, which is 1
- The entire bar = 1 and includes
  - 4 equal parts or 4 fourths
  - 2 equal parts or 2 halves
  - 3 equal parts or 3 thirds



Determining Intake Using Fractions



Determining Intake Using Fractions

- 240 mL in the resident's coffee cup
- Resident drank 2/3 cup of coffee
- Resident drank 160 mL of coffee

$$\frac{2}{3} \text{ of } 240 \text{ mL of coffee}$$

$$\frac{2}{\cancel{3}_{1}} \times \frac{\cancel{240}^{80}}{1} = \frac{160}{1} = 160 \text{ mL}$$

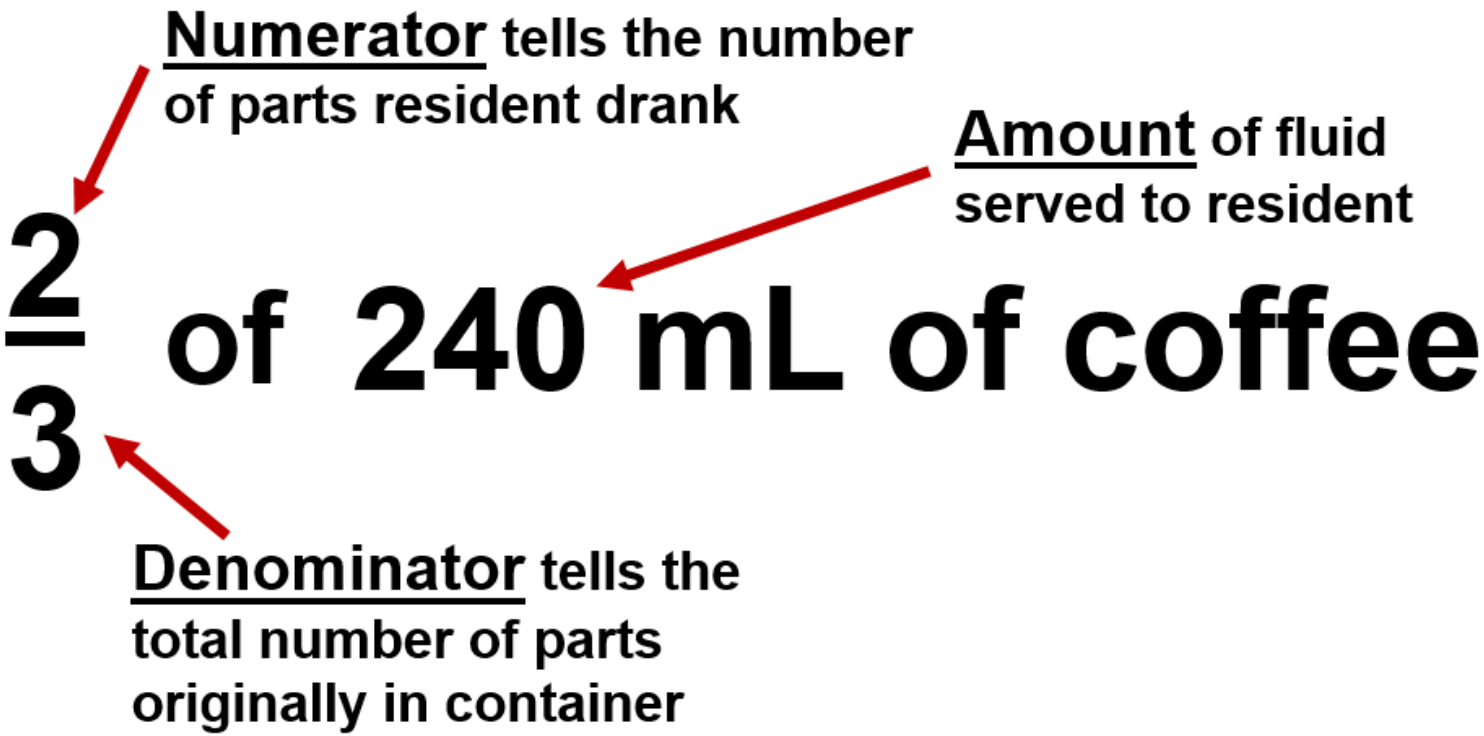
Determining Intake Using Fractions

- 240 mL in the resident's coffee cup
- Resident drank 1/2 cup of coffee
- Resident drank 120 mL of coffee

$$\frac{1}{2} \text{ of } 240 \text{ mL of coffee}$$

$$\frac{1}{\cancel{2}_{1}} \times \frac{\overset{120}{\cancel{240}}}{1} = \frac{120}{1} = 120 \text{ mL}$$

Recall Determining Intake Using Fractions



Determining Intake Using Quickly Fractions

- Determine what 1 part of total coffee equals by dividing the total mL amount of coffee (240) by 3 = 80
- Resident drank 2 of the 3 parts of the coffee, so multiply 80 (which is 1 part) by 2 because the resident drank 2 of the 3 parts = 160
- The resident drank 160 mL of the coffee

$$\frac{2}{3} \text{ of } 240 \text{ mL of coffee}$$

Milliliters and Ounces

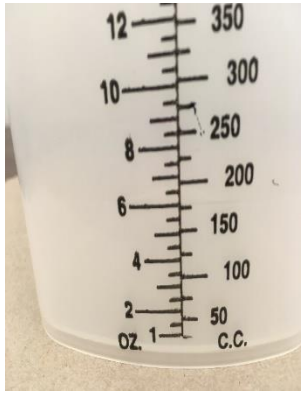
- A common conversion in health care is changing (or converting) ounces to milliliters
- 1 ounce = 30 mL
- To convert ounces to milliliters, simply multiply number of ounces by 30

Conversion Problem – Apple Juice

- 8 fluid ounces of apple juice in the glass
- 1 fluid ounce = 30 milliliters (mL)
- 8 x 30 milliliters (mL) = 240 milliliters (mL)
- 240 mL of apple juice in the glass

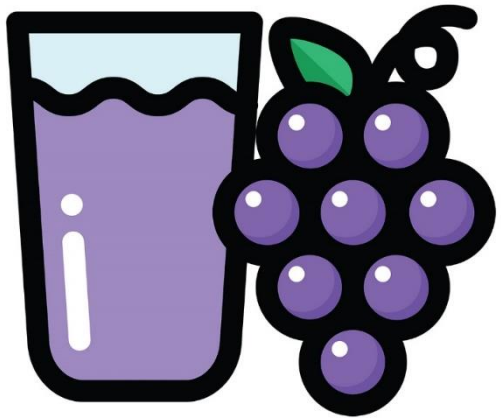
Milliliters and Cubic Centimeters

- Devices in health care are often marked in cubic centimeters (cc)
- A common conversion is changing (or converting) cc to milliliters (mL)
- 1 cubic centimeter (cc) = 1 milliliter (mL)
- To convert cc to mL, simply use the exact number measured



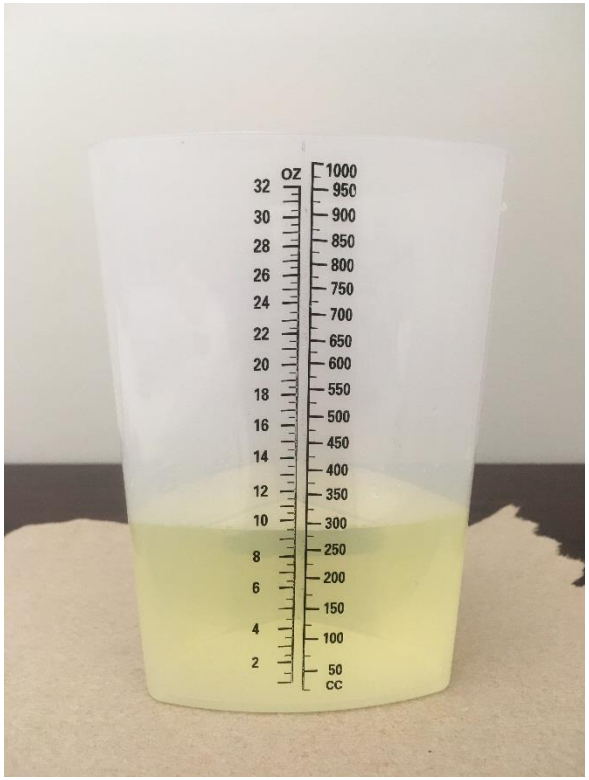
Conversion Problem – Grape Juice

- 120 cubic centimeters (cc) of grape juice in the glass
- 1 cc = 1 milliliter (mL)
- 120 mL of grape juice in the glass



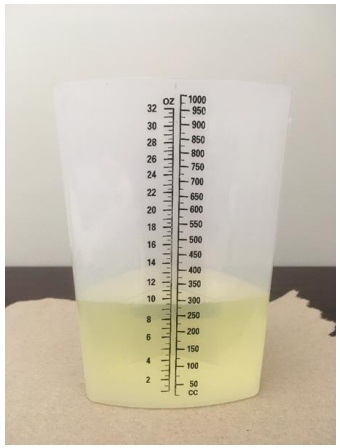
Fluids Considered as Output

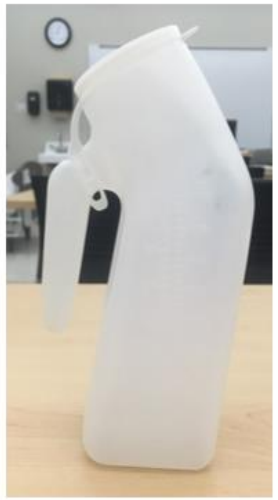
- Urine
- Vomitus
- Diarrhea
- Wound drainage
- Gastric suction material



Devices Used to Collect Output

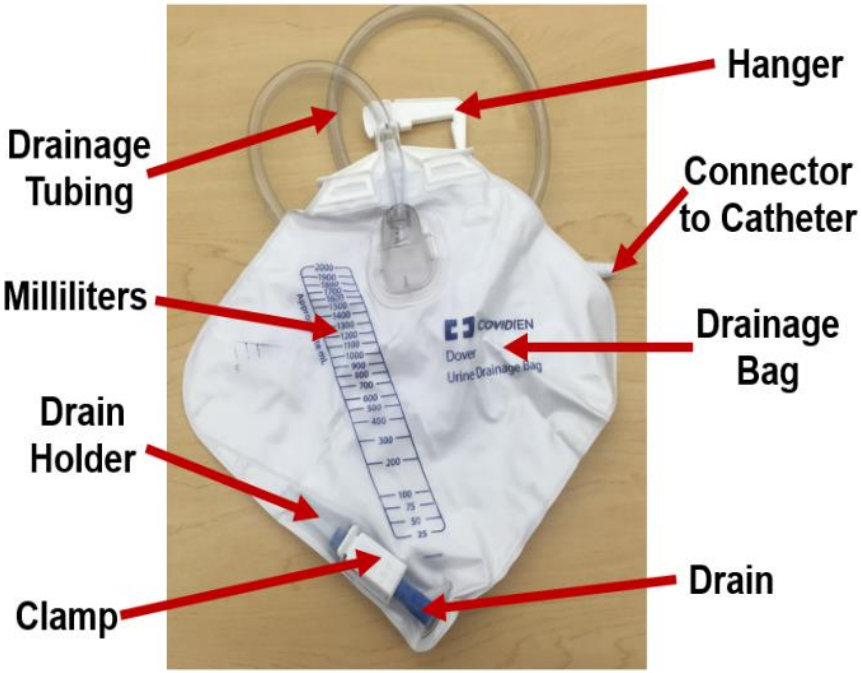
- Graduated specimen container
- Catheter bag
- Urinal
- Commode hat
- Emesis basin





Foley Catheter Bag

- Connected to indwelling (Foley) catheter which drains bladder of urine
- Emptied into a measuring device at end of shift (or sooner, if full)
- Measurement done using measuring device instead of catheter bag

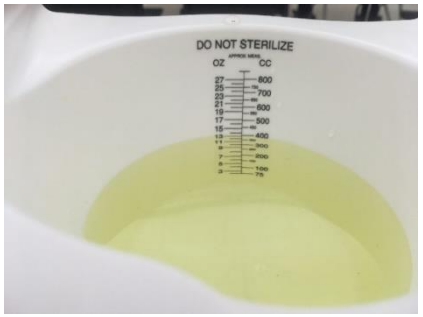


Urinal

- A plastic, elongated device used by individuals for collection of expelled urine
- Meant for single-resident use
- As a measuring device, marked in ounces and cc (same as mL), with 100 cc (mL) increments marked lines and 50 cc (mL) unmarked lines between

Commode Hat (Specimen Pan)

- Plastic collection container placed under commode lid
- Used when resident on bathroom privileges and on measured output
- Used to obtain urine or stool specimen
- Marked in ounces and cc (same as mL); grooved edge

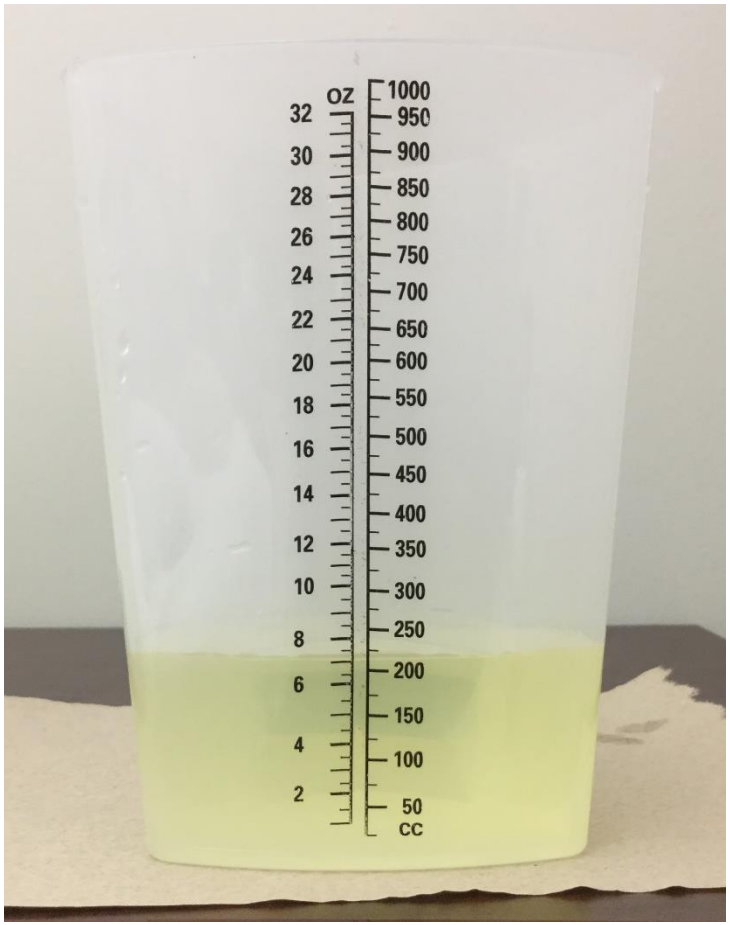


Emesis Basin

- A plastic, shallow basin shaped like a kidney that fits against resident's neck and collects bodily fluids
- Used during mouthcare
- If resident is nauseated, used to collect vomitus
- Marked in ounces and cc (same as mL) with 100 cc (mL) increments

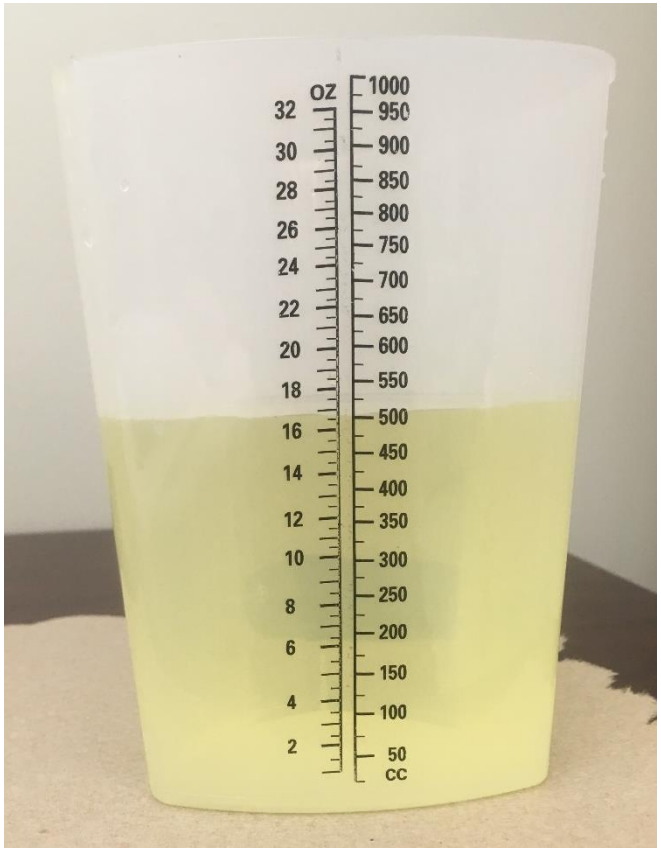
Measuring Urine Example #1

- Long line = 200 cc (mL)
- Short line = 25 cc (mL)
- Amount = 225 cc (mL)
- Document = 225 mL



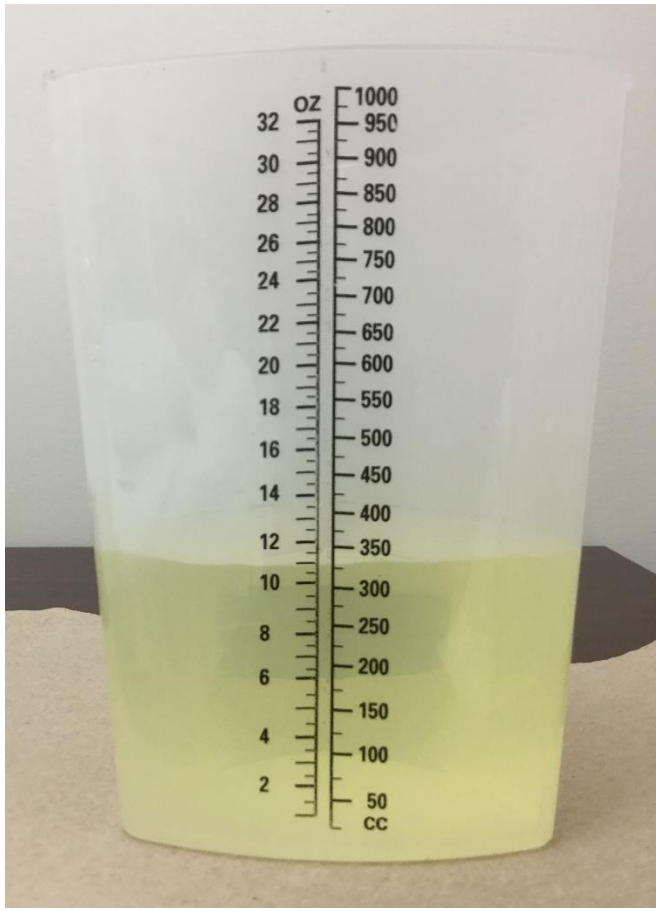
Measuring Urine Example #2

- Long line = 500 cc (mL)
- Amount = 500 cc (mL)
- Document = 500 mL



Measuring Urine Example #3

- Long line = 300 cc (mL)
- Short line = 25 cc (mL)
- Amount = 325 cc (mL)
- Document = 325 mL

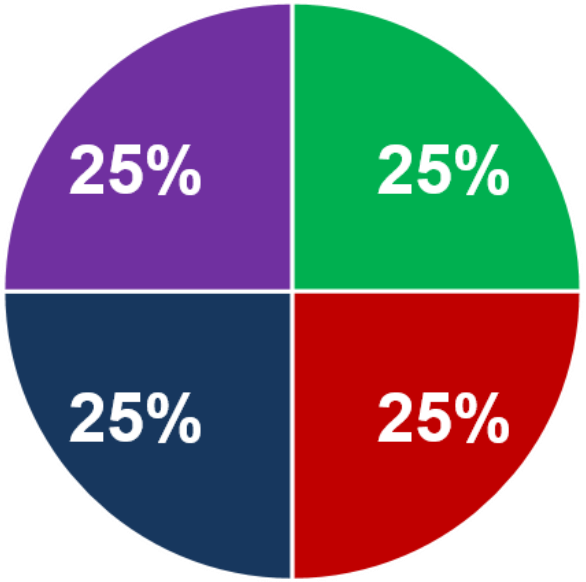


Importance of Identifying Meal Intake

Identifies residents at risk for impaired nutrition

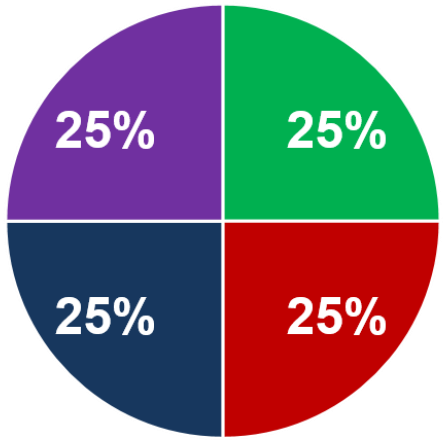
Identifying Food Intake

- Nurse aide compares amount of food eaten with amount of food served
- To measure food intake, nurse aide needs a basic understanding of percentages in relation to a whole, which is 100%



Understanding Percentages of a Whole

- The entire circle = 100% and includes 4 equal parts
- Each 25% is ¼ of the whole
- 25% + 25% = 50% (or ½ of the whole)
- 25% + 25% + 25% = 75% (or ¾ of the whole)



Identifying and Documenting Food Intake

Follow facility procedure regarding identifying and documenting food intake, for example

- Listing exact food eaten (all of chicken, all of green beans, ½ of mashed potatoes, ¼ of biscuit, all of pie)
- Using specific words (all, good, fair, poor, refused)
- Using percentages of food eaten (100%, 75%, 50%, 25%, 0%)

Sample Meals

- Breakfast consists of 2 eggs, 2 slices of bacon, fried apples, grits, biscuit, coffee, and apple juice

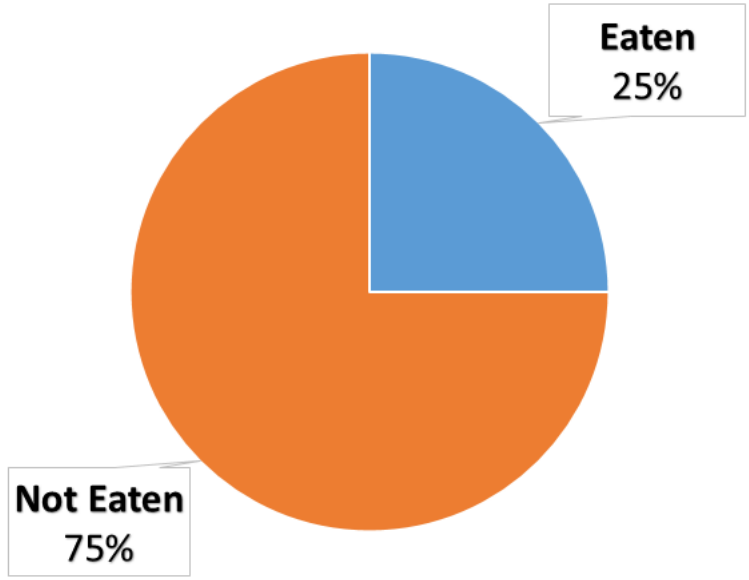
- Lunch consists of 4 grilled chicken tenders, mashed potatoes, broccoli, a corn muffin, coffee, and water

Resident Ate 0% of Meals (Refused)

Breakfast

Lunch

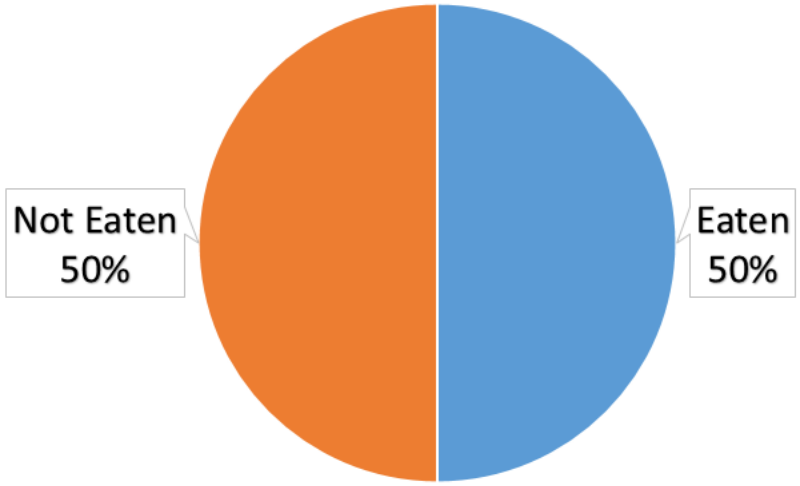
Resident Ate 25% of Meals (Poor)



Breakfast

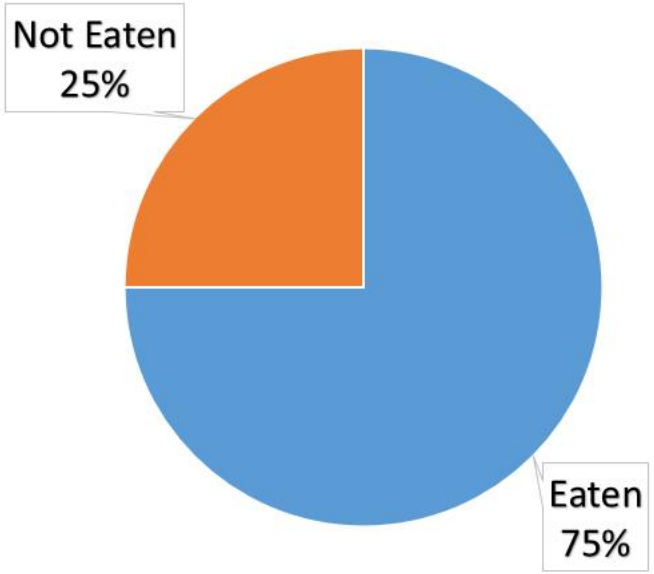
Lunch

Resident Ate 50% of Meals (Fair)



Breakfast

Lunch

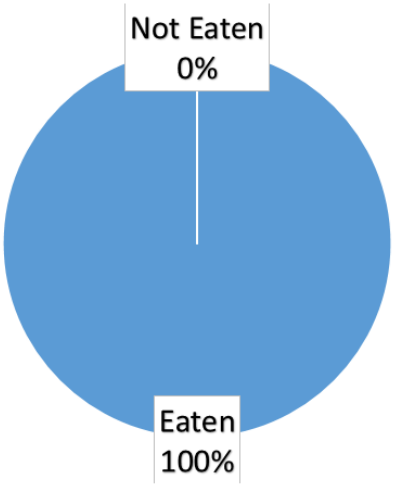


Resident Ate 75% of Meals (Good)

Breakfast

Lunch

Resident Ate 100% of Meals (All)



Breakfast

Lunch

The End