



# Screening Module

## Level I: WIC Certification Program



Colorado Department of Public  
Health and Environment  
Nutrition Services/WIC Program  
4300 Cherry Creek Drive South  
Denver, Colorado 80246-1530  
(303) 692-2400

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# Objectives

After completing this module a WIC staff person will be able to:

- Explain the importance of performing measurements using standard procedures
- Demonstrate correct procedures for taking weight measurements for infants, children, and adults
- Demonstrate correct procedures for taking length measurements for infants and children
- Demonstrate correct procedures for taking height measurements for children and adults
- Demonstrate correct procedures for taking hemoglobin measurements
- Correctly identify normal and abnormal values for a hemoglobin or hematocrit sample
- Describe universal precautions to prevent infection

## Section I: Introduction

When certifying/recertifying a WIC participant, it is necessary to collect certain information. Included in this information is stature, weight and in most cases hemoglobin or hematocrit levels. This Screening Module explains the proper way to obtain and record this information. These measurements are used to assign nutrition risk factors during certification, recertification and midcertification in the WIC Program. This information is also used to assess a participant's health, plan education and intervention, and monitor change.

Stature and weight are called anthropometric measurements. Anthropometric measurements refer to measurements of the size of the body. Anthropometric measurements include weight, height, length, head circumference, abdominal circumference, skinfold, and other measurements. In WIC we are primarily concerned with weight, height, and length. These terms will be discussed in this module. This module will also discuss how to interpret height, weight, and length information on the proper growth and weight gain charts for evaluation.

**Height:** Measurement of the distance from the top of the head to the bottom of the feet that is performed standing upright. This measurement is used for children two years of age and older.

**Length:** Measurement of the distance from the top of the head to the bottom of the feet that is performed lying down. This measurement is used for infants and children younger than two years of age and for children who cannot stand upright.

**Both height and length measure stature, but height and length are NOT the same and cannot be used interchangeably.**

Hematology is the term describing the study, etiology, diagnosis, treatment, prognosis, and prevention of blood diseases. In WIC we perform two hematological tests to determine how much iron a participant has in their blood. Iron deficiency is a common problem for pregnant women and growing children. The amount of iron in a person's blood is an indicator of whether there is enough iron in their body. These hematological tests are called a hemoglobin test and a hematocrit test. Local WIC agencies generally use one test or the other. Only the hemoglobin test will be discussed in detail in this module since it is the most common test performed by Colorado WIC clinics.

It is important that all measurements used in screening WIC participants be performed using a standard procedure. If two people perform a test in different ways the values cannot be compared and the information is not useful. If at a visit a WIC educator weighs a pregnant woman with shoes and coat and at the next visit another educator weighs the woman without shoes and coat, it would be incorrect to compare the measurements. A woman may be gaining or losing weight inappropriately and we would not be able to tell.

Information gathered about weights and heights is also compared against national standards such as growth charts or other charts. These charts are created using standard procedures. Unless these same standard procedures are used to obtain heights, lengths, weights, and hemoglobin in the local WIC clinics, the values cannot be compared to the ideal values of the national standards. Imagine the problem that would occur if Colorado WIC decided to weigh children with their shoes and wearing heavy clothing. The growth charts for children were developed using the weights of children wearing light clothing and no shoes. Soon it would appear that Colorado WIC children were much heavier than

other children in the United States. Some children may even be incorrectly labeled as being overweight and receive counseling for overweight when in fact the child was of normal weight.

Here is another example to illustrate why standard procedures are important:

An infant is weighed at a WIC certification visit. The WIC educator is very diligent and undresses the infant to weigh the infant nude. Compared to a previous weight at the WIC clinic the infant does not appear to be growing well. The infant should have gained more weight between the two visits. Because of the concerns expressed at WIC the mother takes the infant to the pediatrician for a checkup later that afternoon. The nurse at the pediatrician's office weighs the infant, but this time the infant is weighed wearing a wet diaper and a couple of layers of clothing. The infant's mother is surprised to learn that her infant has gained almost a half a pound in the two hours since her WIC visit. The nurse tells the mother that her infant is gaining weight adequately compared to the previous WIC weight. For an infant a half-pound difference in body weight can mean the difference between identifying an infant with growth failure and one with adequate growth.

In this case the mother would be confused. WIC says there is concern about her infant's weight while the physician's office says there is no concern. Comparing the infant's weight to the standard growth charts, using WIC's weight the infant's growth appears poor, while using the physician's office weight the growth appears to be normal. If the WIC weight was used for assessment then something can be done to help the mom improve the infant's growth. If the weight from the physician's office was used for assessment, then the infant would continue with poor growth. This could have long-lasting consequences for the infant's growth and development.

It is very important that all anthropometric and hematological tests be performed using standard procedures, otherwise the values are meaningless.

For any type of measurement to give useful information it must be compared against some type of standard. In this module you will learn how to interpret the weights, heights, and lengths of infants and children on standard graphs to evaluate their growth. You will learn to interpret the weight gain of a pregnant woman to determine if she is gaining weight appropriately. You will learn to compare hemoglobin/hematocrit values against charts to determine if a blood value for an infant, child, or woman is within a normal range.



## Section II: Anthropometry

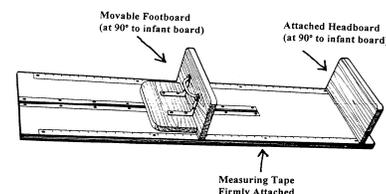
Remember that anthropometry is the measurement of the size of the body. In WIC we measure length, height, and weight. Standard techniques for performing these measurements follow in the next few pages.

### Measuring Stature

#### Length

Length is different than height. **Length** is measured while the participant is **lying down or recumbent**. **Height** is measured while the participant is **standing up**. These two measures are not interchangeable. When standing up the backbone is compressed differently than when lying down. Therefore a person's height is usually different than their length. Length should always be plotted on a graph designed for length while height should always be plotted on a graph designed for height.

Infants and children up to the age of two years should have their length measured. Height is used for children two years of age and older. The Compass system is designed to assume that any measurement of stature is a length until the child is two years of age. Any value entered when the child is two years of age or older in the Compass system assumes the value is a height. A length measurement cannot be entered for a child over 36 months of age. If a length is measured for a child between 24-36 months of age lying down, check the *Recumbent box* in the Anthropometric Screen for a more accurate length for age plotting. For children 24-36 months of age, the length will be plotted on the 0-36 month length for age chart highlighted in red to indicate inaccurate/recumbent measurement. There is a drop down list next to the weight and length/height date boxes if for any reason you cannot obtain an accurate measurement. If an inaccurate reason is selected, the plot on the grid will be in red indicating an inaccurate measurement.



#### Equipment

An infant measuring board with a rigid headpiece and a movable footboard is recommended. The footboard must form a 90-degree angle with the measurement surface. All edges of the board, headpiece, and footboard must be smooth and finished. Measurements should be readable to the nearest 1/8 inch.

#### Technique

Two people are required to measure length. Any clothing that interferes with the measurement should be removed. Children younger than two years of age are measured supine (lying down on their back).

1. An infant or child is laid on his back on the measuring board.
2. One person (could be the mother) holds the infant's head firmly against the headboard (infant's eyes should be pointed directly at the ceiling).
3. The second person brings the infant's knees together and extends both of the infant's legs; one of the examiner's hands should rest on the infant's knees to prevent them from spreading or flexing while the other hand brings the movable foot board to rest firmly against the infant's heels (toes pointed upward).
4. The length is read to the nearest 1/8 inch (round down)  
The information is recorded in the anthropometric portions of the Compass system.
5. Length measurements will be automatically plotted on the appropriate growth chart in Compass.

If a measuring board is not available, the following procedure may be used:

1. Securely attach a steel measuring tape to the top edge of a table. (Steel tape measures are preferable to cloth, plastic, or fiberglass as they do not stretch.)
2. Create a right angle by securing a board to the end of the table. This forms a stationary headboard.
3. Lay the infant on his back next to the measuring tape; the top of his head should be against the headboard and across from the marking on the measuring tape.
4. Proceed as in step #3 when using a regular infant measuring board. Two people should hold the infant who is lying on his back. Legs should be extended, toes pointing upward. A portable footboard that makes a right angle with the board should be used to mark the bottoms of the feet.
5. Record length to the nearest 1/8 of an inch where the heels touch the footboard. (Round down to the nearest 1/8 of an inch)

Measurements of length without a standard infant measuring board should be rare. All WIC clinics are equipped with measuring boards. If a board is not available, talk to your clinic supervisor or call your state nutrition consultant. Measurements without a board are limited to times while a clinic is waiting for a new board or an unusual situation when an infant or child must be measured outside of a clinic.

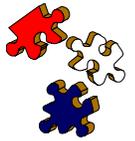
One way to get babies to flex their toes when measuring length is to use the Babinski reflex. This reflex occurs when the great toe flexes toward the top of the foot and the other toes fan out after the sole of the foot has been firmly stroked. To encourage this reflex, staff can take the non-ink end of their pen and run it up the bottom of baby's foot. The baby flexes and the foot board can quickly be brought into place for length to be measured.

### Maintenance

The infant measuring board needs to be kept clean with soap and water. It should be checked monthly to ensure joints have not loosened, edges have not been damaged, or the board does not show other signs of wear. The footboard should be checked monthly and replaced if it no longer creates a right angle.

### Calibration

The measuring board should be compared at least yearly against a metal tape measure. The calibration of the board should also be checked whenever the board has been moved, kicked, abused or adjusted.



**#2 Practice!**

1. Until what age should a child's length instead of height be measured?
  - A. \_\_\_\_\_ 3 months
  - B. \_\_\_\_\_ 6 months
  - C. \_\_\_\_\_ 1 year
  - D. \_\_\_\_\_ up to 2 years
  - E. \_\_\_\_\_ 3 years
  
2. A child who is exactly two years of age should be measured lying down (length) or standing up (height)
  - A. Length
  - B. Height
  
3. It is difficult for one person alone to obtain an accurate length measurement of an infant.
  - A. True
  - B. False
  
4. Using a measuring board is less accurate than using a measuring tape attached to a table.
  - A. True
  - B. False

## Height

Height is a measure of how tall a person is while they are standing upright. In the WIC Program height is measured on participants who are at least 2 years of age.

### Equipment

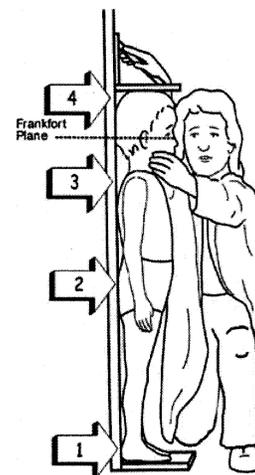
A wall-mounted measuring device such as a stadiometer that is designed for the purpose of taking standing height is the preferred form of equipment. The measuring device should be placed on a wall that has no baseboard or carpet to interfere with measurements. Baseboards prohibit a person from placing their heels directly against the wall, and carpet does not give a firm surface for an accurate measurement. Measuring rods attached to scales are not accurate and should not be used.



If a wall-mounted measuring device is not available a tape and headboard may be used temporarily. Secure a steel measuring tape to a vertical, flat surface such as a wall. The tape measure should be marked in 1/8 inch increments. The headboard needs to be large enough that when placed on the top of the head it will also touch the wall where the measuring tape is attached (a 6-inch board will usually work). The headboard needs to be able to form a right angle when touching the top of the head and the measuring tape.

### Technique

1. Remove the child's or woman's shoes, hats, and bulky clothing such as coats and sweaters. Undo or adjust hairstyles and remove hair accessories that interfere with measurement.
2. The child or woman should stand erect, with shoulders level, hands at sides, knees or thighs together, and his/her weight evenly distributed on both feet. The child's or woman's feet should be flat on the floor with both heels comfortably together and touching the base of the wall. When possible, all four contact points (i.e., the head, back, buttocks, and heels) should touch the wall while maintaining a natural stance (see figure in left margin). Some participants will not be able to maintain a natural stance if all four contact points are touching the wall. For these participants, at a minimum, two contact points, the buttocks and heels should always touch the wall.
3. Position the participant's head so that they are looking straight forward.
4. Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the wall. Check contact points as in the figure on the left to ensure that the lower body is still in the proper position and that the heels remain flat on the floor.
5. The measurement is recorded in the Anthropometric section of the Compass system. This information will be automatically plotted on the correct growth chart.
6. Inaccurate length measurements can occur and reasons for this discrepancy need to be documented in the Anthropometrics panel in Compass. Possible reasons for inaccurate measurements include noncompliant/refused, special needs and other.



### Maintenance

The measuring device must be kept clean and free of stray marks. The device should be checked monthly to ensure that it is perpendicular to the floor and accurately and firmly attached to the wall.

The headboard should be checked for signs of wear and replaced if loose, broken, or no longer creates a right angle with the wall.

### Calibration

The measuring device should be compared yearly with a metal tape to make sure it still gives accurate measurements.

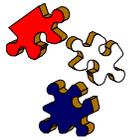
### Using a Tape Measure Attached to the Wall

1. Select an area where there is no baseboard or carpet and the wall is perpendicular with the floor. Stretching the tape over a baseboard or standing on carpet will distort the measurement.
2. Place the end of the tape measure marked zero on the floor and secure it to the wall.
3. Fully extend the tape upward on the wall. Lightly attach the tape to the wall.
4. Double check placement of the measuring tape paying particular attention to the zero mark. Make sure the zero mark is still at the level of the floor. Also verify that the tape goes straight up the wall and does not veer to one side or the other as it goes up the wall.
5. Secure the measuring tape snugly to the wall to prevent it from being accidentally torn from place.
6. Reinforce the first four inches with tape.

Measurements without a standard measuring device should be rare. All WIC clinics must be equipped with measuring devices for height.

Note: Do not use movable measuring rods on platform scales to measure stature. The head bar is unsteady, pliable (it bends), and too narrow to obtain an accurate measurement. The base (weighing platform) also sinks due to the weight of the participant, resulting in an inaccurately shortened height.

**#3 Practice!**



Answer T (True) or F (False) to each of the following:

1. \_\_\_\_ The height of a participant can be measured with shoes on as long as the clinic is consistent and always measures the participant the same way.
2. \_\_\_\_ When the height of a participant is being measured it is acceptable to let the participant wear shoes as long as the shoes do not have heels.
3. \_\_\_\_ When measuring a person's height their buttocks and heels at a minimum should be touching the wall.
4. \_\_\_\_ If a standard measuring device is not available, height can be measured using a steel tape measure attached to the wall and a magazine as a headboard.

## Measuring Weight

Weights are required on all WIC participants at certification and recertification visits and for infants at the mid-certification visit. Weights are highly recommended on infants at the 3 and 9 month visits, on women at all prenatal visits, and on any WIC participant at follow-up visits when there is concern about growth or weight gain.

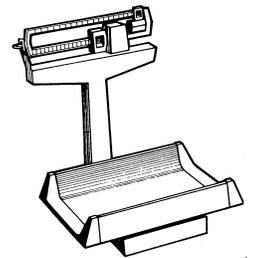
Infants and children less than two years of age are generally weighed on an infant scale while either lying down or sitting on the scale. Children two years of age or older and women are weighed on an adult scale while standing upright.

### Infant Weight

This procedure should be used with infants and children less than two years of age. Children two years of age and older are weighed on an adult scale.

#### Equipment

A beam balance scale with a tray and non-detachable free-sliding weights is the recommended form of equipment. The scale should be marked in increments of 1 ounce. The scale must have a zeroing adjustment (screw type preferred).



NOTE: The scale must rest on a firm, stable table.

NOTE: Spring balance scales (such as bathroom scales) are not recommended. The spring counter balance loses accuracy over time and many scales are not capable of reading more accurately than one-half pound. Most bathroom scales are difficult to read since measurements are read at floor level.

#### Technique

Weight should be obtained while the infant/child is nude or wearing only a dry diaper. If this is not possible it is important to record how the weight differed.

1. A sheet of paper is placed on the scale to protect the infant from the cold metal plate. For sanitation reasons, the paper is changed after weighing each infant.
2. The scale is balanced to zero with the paper on it.
3. The mother is instructed to undress the infant and place him lying in the center of the scale. If the infant/child is capable of sitting on her own, the mother may place the infant/child sitting in the center of the scale. It is important to protect the infant/child from falling in this instance.
4. Check to make sure the infant is not touching anything other than the scale's tray. Check feet and hands especially if they are hanging over the side of the scale weighing tray. Check around the scale to make sure infant clothing or other objects are not interfering with the free movement of the scale tray (sometimes a parent will put the infant's clothes under the scale as they undress the infant).
5. The appropriate weights are moved back and forth until the arrow on the right-hand side of the scale rests in the exact center.
6. The weight is recorded to the nearest ounce.
7. The weights are returned to the zero position at the left-hand side of the scale.
8. The measurement is entered into the Anthropometrics panel of the Compass system. .
9. The information will be plotted automatically onto the appropriate growth grid in the Compass system.

A frightened infant/child may be weighed in the mother's arms. The mother is weighed alone on an adult scale and then with the child. The mother's weight is then subtracted from the combined weight. Document in the notes that the weight was obtained while infant was in mother's arms on an adult scale.

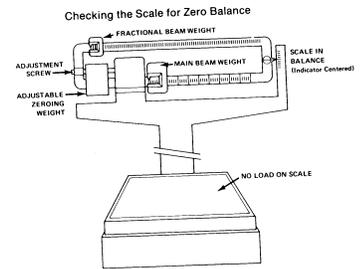
**Note: An infant or small child must be protected at all times to ensure they are not injured or do not fall during measurement of their weight or length.**

### Maintenance

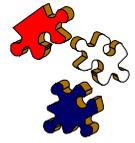
The scale must be kept in zero balance. The scale should be zeroed before each session and whenever the scale is transported. To zero the scale:

1. Remove any objects from the scale.
2. Place all the attached weights directly over the zero positions.
3. Move the adjustable zeroing weight or screw until the arrow on the right-hand side of the scale rests in the exact center.

Scales need to be periodically checked to make sure they record accurate weights. This is done by weighing standard weights on the scale to determine if the scale gives the correct reading. For example a ten-pound weight could be put on the scale to determine if the scale gives a reading of exactly ten pounds. The weights used for this purpose are specially designed to weigh very exact amounts. Objects that weigh about ten pounds cannot be used to check the accuracy of the scale. Most clinics have their scales tested annually by the State of Colorado Department of Agriculture Weights and Measures. The Department of Agriculture tests the scale with various standard weights and will alert clinics if the scale is not measuring accurately (i.e., "out of tolerance"). The scale should be tested any time there is suspicion the scale may be incorrect. For purposes of WIC an infant scale should read within one ounce of the standard weight being tested.



✓ #4 Practice!



1. Mark the following T (True) or F (False).

A. \_\_\_\_ Ideally infants should be weighed without clothes or wearing only a dry diaper.

B. \_\_\_\_ Bathroom scales are just as accurate as beam balance infant scales.

C. \_\_\_\_ An infant's weight should be read to the nearest ounce.

## Measuring Standing Weight of Children and Adults

### Equipment

A beam balance scale with a platform and non-detachable free-sliding weights is recommended. The scale should be marked in increments of not less than four ounces ( $\frac{1}{4}$  pound). It must have a zeroing adjustment (screw type preferred). Electronic scales are not generally used in Colorado WIC clinics because of added expense for purchasing, maintaining, and repairing the scales.

NOTE: The scale must rest on a firm, non-carpeted surface.

NOTE: Spring balance scales (such as bathroom scales) are not recommended. The spring counter balance loses accuracy over time and many scales are not capable of reading more accurately than one-half pound. Most bathroom scales are difficult to read since measurements are read at floor level.

### Technique

1. The participant is asked to remove all heavy clothing (such as coats, heavy sweaters, snowsuits) and shoes. The prenatal client must be weighed in light clothing consistently throughout pregnancy. Children must also be weighed in light clothing.
2. Confirm that the sliding weights on the horizontal beam are in the zero position and that the scale is in balance.
3. The participant is asked to stand in the center of the platform with her body upright and arms hanging naturally at her sides. It is important that the participant stand in the center of the scale in order to get an accurate weight.
4. The appropriate weights are moved back and forth until the arrow on the right-hand of the scale rests in the exact center.
5. The measurement is read and recorded to the nearest  $\frac{1}{4}$  pound
6. The measurement is recorded in the Anthropometrics panel in Compass. For breastfeeding and non-breastfeeding postpartum women the weight is only recorded in Compass (since their weights are not plotted on any charts).
7. Return the weights to the zero position on the left-hand side of the scale.
8. Record the information in the Compass system.

It is important to respect the participant's confidentiality and sensitivity concerning their weight. Care should be taken to not embarrass the participant by announcing their weight in such a way that others in the clinic may hear it.

### Maintenance

The scale must be kept in zero balance. The scale should be zeroed before each session and whenever the scale is transported. Refer to the section on measuring weight for infants for information on maintaining the scale and making periodic checks of the scale's accuracy.

#### **Participants who are unable to stand or are too large to be weighed:**

When participants are unable to stand due to physical impairment, investigate other ways of weighing. Children's weights may be obtained in their parents' arms. The parent is weighed first and then the parent and child are weighed together. The child's weight is obtained by subtracting the two weights. The reason for the possible inaccuracy in weighing must be documented in the Anthropometrics panel

in Compass. The drop down list for inaccurate weight includes excess clothing, infant/child with wet/dirty diaper, noncompliant/refused, special needs, weighed with an adult and other. For adults who are unable to stand it may be possible to find other facilities where a weight can be obtained, for example a clinic or physician's office where the adult receives health care or therapy. Ask the participant to bring weight measurements with them to their WIC appointments. Again, notation should be made in the education note as to where or how the weight was obtained.

If a participant's weight is too great to be measured on the WIC scale ask if the participant is being weighed at their physician's office. If the answer is yes, ask them to bring their weight to the WIC appointment. It is important to respect the integrity of the participant under such circumstances. If weight is unavailable, it may be necessary to forego obtaining a participant's weight. Under these circumstances the participant's nutrition care and assessment need to be redirected to look more closely at diet or the participant's perception of her weight rather than on actual weight gain or loss. Participants in this situation should be seen by the WIC RD/RN for assessment and follow up. Notation should be placed in the nutrition care plan explaining why a weight was not obtained.

### **NRF #135 – Inadequate Growth or Potentially Inadequate Growth**

**Infants:** Birth to 1 month of age

- ✓ Current weight less than birth weight at 2 weeks of age or greater **OR**
- ✓ Current weight is ½ pound (8 oz.) less than birth weight
  - Both of the above criteria are automatically assigned by Compass and require further assessment and counseling by the High Risk Counselor within 24 hours

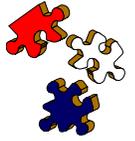
**Infants:** One month to 12 months of age

- ✓ Any weight gain that is less than the expected weight gain from the "*Minimum Expected Weight Gain Tables*"\* using current weight and the most recent previous weight (as permitted by the tables)
  - Further assessment and counseling is required by the High Risk Counselor within 30 days when the above conditions are present.

**Children:** Ages 12 months to 5 years

- ✓ This risk factor is defined as any weight gain that is less than the expected weight gain from the "*Minimum Expected Weight Gain Tables*"\* using current weight and the most recent previous weight (as permitted by the tables). Children meeting these criteria only are considered low risk.
  - Further assessment and counseling is required by the High Risk Counselor within 30 days when the following conditions are **also** present.
    - Growth drops two channels in 6 months or less for weight for age, length/height for age or weight for length/height or BMI for age **OR**
    - Weight loss or no gain between two weights taken at least 3 months and no more than 6 months apart **OR**
    - Both weight for age and length for age less than the 5<sup>th</sup> percentile.

**\*Refer to the Ht/Wt/Hgb/Hct Tables Section of the Mini-Manual for current Minimum Expected Weight Gain (MEWG) Tables**



**#5 Practice!**

Mark the following statements T (True) or F (False).

- A. \_\_\_ Participants should be weighed with their shoes on.
- B. \_\_\_ Scales must be balanced at zero before each weighing.
- C. \_\_\_ Participants should not wear coats, heavy sweaters, or boots, or hold purses, packages, or toys while being weighed, as these items add weight on the scale.
- D. \_\_\_ It is important that the participant stand in the center of the scale 's platform to get an accurate weight.
- E. \_\_\_ Adult and child weights should be measured to the nearest pound.

## General Information About Heights and Weights

### Required Measurements for Infants and Children

Stature and weight data must be collected on infants and children when they are being certified or recertified on the WIC Program. This information is necessary for assessment and certification on the WIC Program. Length and weight measurements are also required on infants at their mid-certification visit at 5-7 months of age. Lengths and weight for infants are recommended at 3 and 9 months of age for the purpose of assessing growth.

### Length and Weight Measurements for Infants

<u>Required</u>	Certification Visit Mid-certification Visit (5-7 months)*
<u>Recommended</u>	3 Months 9 Months

\*A parent may refuse to allow length and weight measurements at the mid-certification visit for an infant. The mid-cert measurements, however, are very important for assessing the health of a growing infant. In the event a parent refuses to allow the measurements, staff should explain the importance of the mid-certification assessment to encourage the parents to give the necessary permission to obtain the measurements. WIC benefits may not be withheld because a parent refuses lengths and weights at a mid-certification visit.

### Stature and Weight Measurements for Children

<u>Required</u>	Certification/Recertification Visits
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### Measurements Brought to the Clinic

Parents may bring stature and weight measurements from a physician's office or similar source. These measurements may be used for certification/recertification or the infant's mid-certification assessment visit. The measurements, however, may not be more than 60 days old. When using measurements that were not taken at the WIC visit it is important to know the date the measurements were taken. The date the measurements were taken needs to be charts entered into the weight and length/height fields in Compass.

When a parent brings stature and weight measurements from a physician's office it may still be desirable to obtain current measurements in the WIC clinic. This is especially true for infants and for measurements that are more than a few days old. While regulations allow measurements to be 60 days old, measurements that are more than a few days or weeks old may not give a good assessment of the current health of an infant or child.

Stature and weight measurements brought into the WIC clinic must be from a reliable source. Measurements generally need to be performed by health care professional using standard measuring procedures as outlined in this module. Measurements taken by parents on a home scale or with a tape measure are not acceptable. Measurements must also be accurately communicated with the WIC clinic. Verbal reports from parents may not be accurate. Many clinics require that the measurements be written on prescription pads or letterhead from the health care provider's office. Each local WIC

agency has its own policy with respect to stature and weight measurements taken outside of the WIC clinic. Ask your supervisor about your clinic's policy.

One challenge for all WIC clinics is explaining to parents why measurements taken in WIC clinics do not exactly match those taken in other places. There are a number of reasons why the measurements may not match. Scales and measuring devices for height and weight vary somewhat from place to place. Ideally all scales and devices are properly calibrated and maintained to give accurate values, but this is not always the case. Also, not all health care personnel choose to follow the same standard procedures for performing measurements. Ask the parent if the infant was weighed dressed or with a diaper. Was the child wearing their shoes or coat when measurements were performed? Finally, the weight of the human body does vary over the course of a day. A baby will weigh more before having a bowel movement or before emptying his/her bladder. A baby will weigh less just before they eat. Variation in measurements from one location to the next is a good reason to encourage that measurements be made at your clinic whenever weights are required or needed. Comparisons of measurements are most accurate when they are performed on the same equipment, using the same standard procedure. WIC is very concerned about obtaining accurate stature and weight measurements. It is the reason for this module. It is the reason clinic equipment needs to be carefully maintained and inspected. It is also the reason WIC staff members are periodically evaluated for their ability to obtain accurate measurements.

### Required Measurements for Women

Weight measurements are required for women at each certification/recertification visit. Heights are required for adult women only at their initial certification visit since adults generally do not change height. Growing adolescent women under age 18, however, need to have their heights measured at each recertification visit.

Height and weight measurements must be performed on women. It is not acceptable for a woman to self-report her height or weight self reported weight and height data can often be inaccurate.

As with infants and children, women may bring measurements from a health care provider as long as the measurements are not more than 60 days old **and** as long as the measurements were taken during the woman's current physiological status. For example, the weight of a pregnant woman must be taken during the time she is pregnant, the weight of a postpartum woman must be taken after she is no longer pregnant.

It is **not recommended** that weights taken outside of the WIC clinic for pregnant and postpartum women be routinely accepted if they are not current. Weights can change fairly rapidly during pregnancy and the postpartum period. A pregnant woman may bring a weight measurement from her doctor that was taken 2 weeks ago before she experienced significant nausea and vomiting. That weight would have very little meaning today and it may mean that WIC staff would miss an important opportunity to help the woman with a significant nutritional problem.

## Height and Weight Measurements for Women

<u>Required</u>	<i>Certification/Recertification Visits</i>
	Height is only required at the initial certification visit unless the woman is under 18 years of age. Women under age 18 need to have their height measured at each certification and recertification visit.
	Weight each trimester for pregnant women
<u>Recommended</u>	Weight at all visits for pregnant women

### Data Entry

**ALL** height and weight data collected at **ANY** WIC visit should be entered into the Compass system. This is true even of data collected at follow-up visits. This helps to give a more complete picture of a WIC participant's health status. This is especially important when participant data is transferred from one WIC agency to another. The Compass system will provide a message indicating what height and length measurement range is acceptable; but will allow measurements outside of this range. Any measurements outside of the range will not be plotted on the growth chart. Data for weight can be entered without stature and vice versa.

### Common Measurement Errors

As stated earlier it is very important stature and weight data be collected accurately in a standardized manner. Inaccurate measurements are of little value and can result in inaccurate assessments of an infant's or child's nutritional status. This can have serious health consequences for the infant or child. Some of the more common measurement errors that occur include:

For all measurements:

1. Inaccurate equipment
2. Wrong equipment
3. Restless or fearful child who makes measurements difficult
4. Reading equipment incorrectly
5. Recording information incorrectly

For length:

1. Incorrect instrument for age
2. Footwear or headgear not removed
3. Head not held straight above body
4. Head not firmly against fixed end of board
5. Child not straight along board
6. Body arched
7. Knees bent
8. Feet not parallel to movable board (toes not pointing toward ceiling)
9. Board not firmly against heels
10. Only one leg used for measurement

For height:

1. Incorrect instrument for age
2. Footwear or headgear not removed
3. Feet not straight or flat on floor
4. Feet not back against tape measure
5. Knees bent
6. Body arched or buttocks forward (body not straight)
7. Shoulders not straight or touching tape measure
8. Head not straight above body and eyes looking forward
9. Headboard not firmly on crown of head
10. Headboard does not form right angle with wall (for non-attached headboards)
11. Inappropriate headboard used (for non-attached head boards)

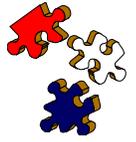
For weight:

1. Room cold, no privacy
2. Scale not adjusted to zero before weighing
3. Infant/child not weighed nude or in dry diaper (two years of age or younger)
4. Child or woman weighed with heavy clothing and/or shoes
5. Infant or child moving
6. Child or woman holding toys, bottle, or holding onto scale
7. Parent holding child to steady them on scale
8. Clothing or other objects placed under scale that affects its movement

When height, length, or weight values appear too abnormal, staff may want to consider re-measuring the woman or child. For example, if a child's weight has changed dramatically since the last visit, the child has decreased in stature or weight, or a pregnant woman has a very high increase in weight it may be wise to redo the measurements. Many things can happen that would cause measurements to be incorrect. Before worrying the participant or sending a false message to a physician it is better to recheck the measurement to be sure it is correct.

**#6 Practice!**

Answer T (True) or F (False) to each of the following statements.



1. \_\_\_ All measurements taken on participants in the WIC clinic should be entered into the Compass system including stature or weight measurements taken after the certification visit.
2. \_\_\_ Infants should be weighed in light clothing with their shoes and coats removed.
3. \_\_\_ A pregnant woman may self-report her height when being certified on the WIC Program.
4. \_\_\_ It is recommended that pregnant women be weighed at each WIC visit.
5. \_\_\_ How old may height and weight information be to be used to certify a participant on the WIC Program?
6. At what age are mid-certification visits performed for infants\_\_\_\_\_.
7. List two reasons why an infant's weight at the doctor's office two hours ago may be different than their weight right now in the WIC clinic:
  - A.
  - B.

## **Procedure For Recording Measurements:**

### Why Use Growth Charts?

Growth charts are designed to represent the normal growth of healthy children. In the WIC Program we use charts developed by the National Center for Health Statistics (NCHS) for the Centers for Disease Control and Prevention (CDC). These charts were developed from studies on normal, healthy children in the United States. There are four basic CDC growth charts used by the Colorado WIC Program. Two are for boys and two are for girls. The boys' and girls' charts are divided into those for children 0-36 months of age and those for children 2-5 years of age.

The CDC growth charts contain individual charts for stature for age, weight for age, weight for stature, weight for length, BMI for age, and head circumference for age. In the Colorado WIC Program we use all of the individual charts except head circumference for age.

The growth charts contain smoothed percentile curves depicting growth percentiles of 5, 10, 25, 50, 75, 85, 90, and 95. Each percentile serves as a reference for comparison. For example, a female child who is at the 25th percentile height-for-age is taller than 25% of the girls her age and shorter than 75% of the girls her age. Any child whose height is between the 10th and 90th percentile is considered to be in the "normal range."

Recording measurements from two or more visits provides a visual presentation of a child's growth pattern. In theory a child whose height is at the 25th percentile should continue to grow so that her height stays at the 25th percentile over time. This is not always true. However, the greater the variation from a percentile line the more concern there is that something unusual is going on with the child's growth. Growth that varies greatly from a normal growth line needs to be referred to the WIC RD/RN for evaluation. Growth charts are an important tool for assessing a child's nutritional status since nutrition plays a major role in growth. Poor growth can indicate poor nutrition (though poor growth can also result from other factors such as illness).

Stature and weight measurements must be obtained at each certification/recertification visit. They can also be obtained any other time that there is a need for the measurements. The information must always be entered into the Compass system. For the growth charts to correctly reflect the percentiles calculated by Compass the following must occur:

### 0-36 months Growth Charts:

Enter the Anthropometrics panel and select "New" to create a record for today. Enter weight with fraction, decimal or metric measurements. Available growth charts include Weight for Age, Length for Age and Weight for Length. Compass charts display age in increments of one month beginning with birth. Weight is displayed in increments of 2 pounds. Length is displayed in increments of 1 inch.

### On the 2-5 years Growth Charts:

Enter the Anthropometrics panel and select "New" to create a record for today. Enter weight with fraction, decimal or metric measurements. Available growth charts include Weight for Age, Stature for Age, Weight for Stature and BMI for Age. Compass charts display age in increments of 2 months beginning with 2 years. Weight is displayed in increments of 1 pound. Height is displayed in increments of 1 inch.

Body Mass Index (BMI):

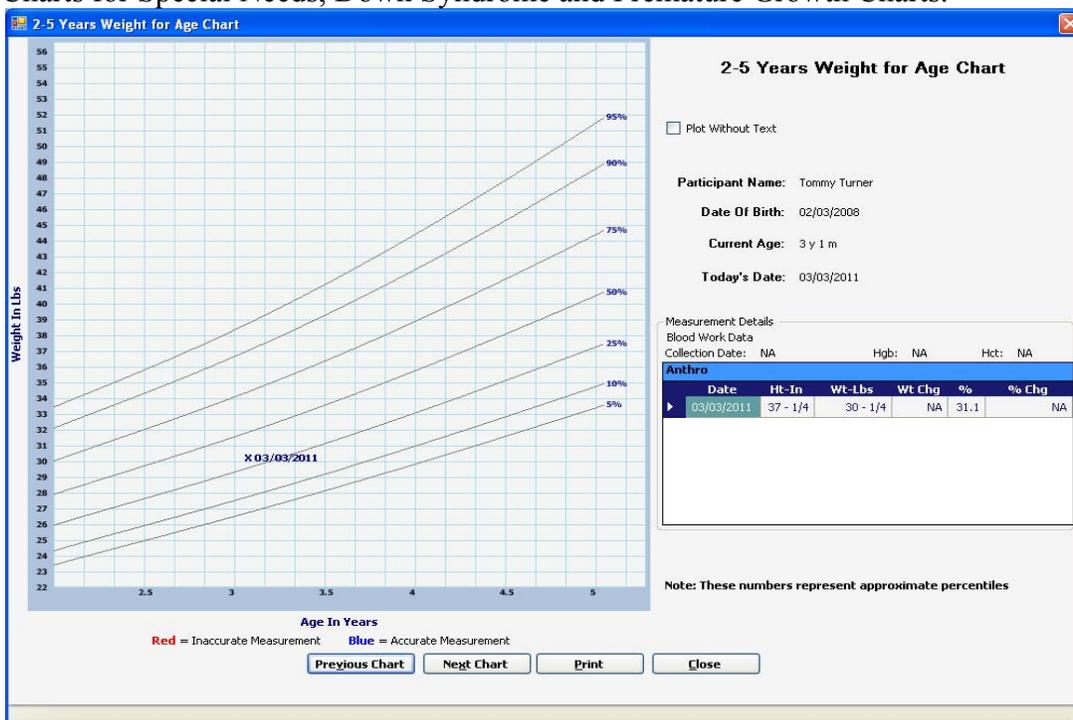
Body Mass Index (BMI) is a ratio of a person’s weight to their height. It is used to determine whether a person is at a healthy weight.

BMI-for-age is an anthropometric index of weight and height combined with age. BMI-for-age is used to classify children and adolescents as underweight, overweight, or at risk of overweight.

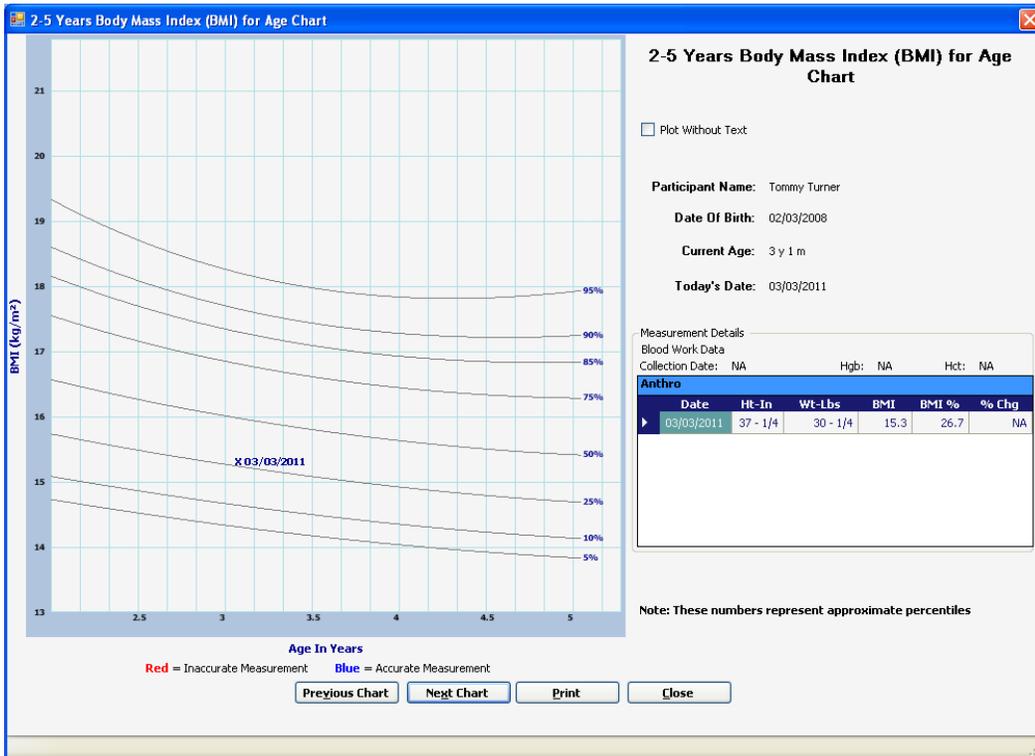
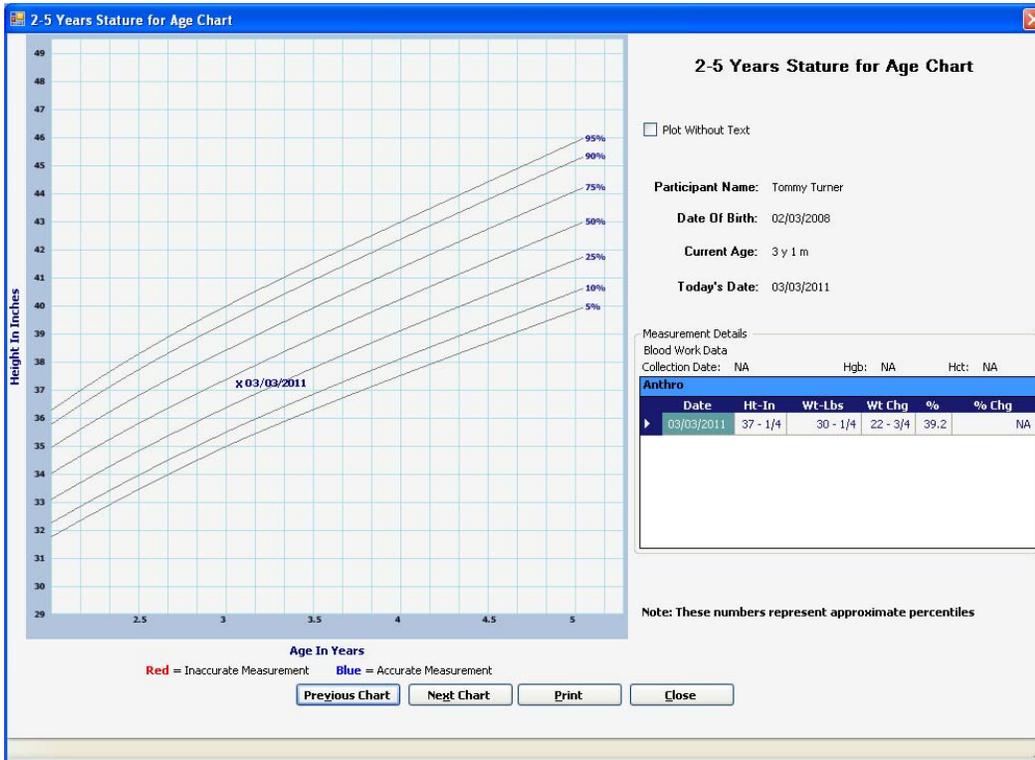
Expected values for children’s BMI’s are different than for adults.

Current BMI is automatically calculated by the Compass system after the weight and stature measurements have been entered and saved. The current BMI is located in the upper right hand area of the Anthropometric panel.

The Compass system provides several web links to special growth charts that include CDC Growth Charts for Special Needs, Down Syndrome and Premature Growth Charts.



Section II: Anthropometry



Case Study: Please refer to the previous growth charts examples.

Tommy Turner is a 3-year-old boy being certified on the WIC Program for the very first time today. He weighs 30 1/4 pounds and is 37 1/4 inches tall. His BMI is 15.3 and today's date is March 3, 2011. Tommy's birthday is February 3, 2008.

1. Because Tommy is more than 2 years of age, the 2-5 years Charts are used in Compass. The title of the chart is displayed at the top of the screen.
2. Participant Name, Date of Birth, Current Age and Today's Date are all displayed.
3. In the table on the right-hand side of the screen is a grid that includes, the date, his height, his weight, and his weight change or BMI, and % change are populated into the grid.
4. The vertical and horizontal labels on the chart display the type of anthropometric measurement and the type of standard used.
5. The current measurement will be displayed with an X along with the date on the growth chart.
6. The growth chart % indicates at which percentile the measurement is plotted. For example, Tommy's weight for age is 31.1%, his stature for age is 39.2%, and his BMI for age is 26.7%.

What does Tommy's growth grid tell us about his growth? The lines that cross the graphs and are labeled 5, 10, 25, 50, 75, 85, 90, & 95 are referred to as percentile or channel lines. On the stature for age grid Tommy's height falls just below the 50th percentile "channel" line around the 39<sup>th</sup> percentile. This tells us that 61% of the boys Tommy's age are taller than he is and 39% are shorter. We would expect in the future that Tommy will continue to grow and that the next time we see Tommy his new height at his new age will still fall around the same percentile "channel" line. Weight alone cannot tell you if a child is over or underweight. It depends on how tall the child is.

Think about this with adults. If you were told that a 30 year old man weighs 150 pounds you cannot say if he is underweight or overweight. It depends on how tall he is. If he is five feet tall he is overweight. If he is 6 feet 5 inches tall he is underweight.

Tommy's weight for age is just slightly above the 25th percentile channel line, at the 31.1 percentile. This tells us that he weighs less than about 69 percent of the children his age and more than 31% of the children his age. Weight for age does not in and of itself tell us if Tommy is underweight or overweight.

Tommy's BMI for age is at the 26.7 percentile and is considered within the normal range.

### Overweight

Overweight children less than 2 years of age:

Overweight, defined as a weight for length greater than the 95th percentile, does not pose the same risk among infants as it does among children 2 years and older. Overweight infants may not be at increased risk of being overweight in adulthood, and they do not have the medical risks associated with overweight in childhood. Because of this information provided by the Centers for Disease Control and Prevention (CDC), Colorado WIC does not consider weight for height in children less than 2 years of age that is greater than the 95th percentile, a nutrition risk factor.

"At risk of overweight" and "overweight" are the preferred terms to refer to children older than 2 years of age whose excess body weight could pose medical risks. Due to potential negative connotations associated with the term "obesity," "overweight" is the preferred word.

BMI for age is used to screen children aged 2 to 20 years for at risk of overweight and overweight, in order to identify children who may need further assessment and possible treatment.

BMI Calculation:  $BMI = (\text{Weight in Pounds} / (\text{Height in inches} \times \text{Height in inches})) \times 703$

“At risk of overweight” for ages 2 to 20 years is defined as a BMI for age at or above the 85th and less than the 95th percentile. “Overweight” in children is defined as a BMI-for-age at or above the 95th percentile on the charts.

While BMI is commonly used to evaluate overweight and obesity in adults, only recently has it been recommended for screening children and adolescents. An advantage of using BMI-for-age is that it can be used continuously from age 2 years through adulthood. Like weight-for-stature, BMI is a screening tool used to identify individuals who are underweight or overweight. BMI is NOT a diagnostic tool—in other words, we are not diagnosing overweight when we plot a child’s BMI-for-age. In WIC we use BMI to screen for risk factors and to assess growth.

For more information on BMI-for-age and overweight in childhood, go to:

<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module1/text/mainmodules.htm>

After height/ length and weight have been entered into Compass, BMI and BMI-for-age will be calculated by the Compass system. The BMI and the child’s age will be plotted on the BMI for age grid. The resulting plot mark will be the child’s BMI for age percentile.

When looking at growth charts it is important to remember a couple of points:

1. Heights and weights between the 10th and 90th percentiles are considered in the normal range. Some people think that everyone should be at the 50th percentile, however, this is incorrect. It is normal for some children to be at the 25th percentile or even the 10th percentile.
2. One height and weight measurement cannot tell if a child is growing well or not. If a child is only seen once and both his height and weight are at the 50th percentile, it may be tempting to say the child has “normal” growth. For this to be true we would need to know where the child was in the past. If the child had been at the 80th percentile 6 months ago and now is at the 50th percentile then the child’s growth may not be “normal” and there may be reason for concern.
3. BMI-for-age greater than the 10th and less than the 85<sup>th</sup> percentile is considered in the normal range.

More information about interpreting growth charts can be found in the Nutrition Risk Factor module.

## What Growth Charts Tell Us

1. Height and weight plotted at one age gives information as to how a child ranks in size in relation to other children of the same sex and age (overweight, underweight, or normal weight).
2. BMI-for-age tells us the same information for children older than 2 years.
3. Several measurements plotted at different ages gives information on whether the child's growth is progressing adequately. Most children stay at approximately the same percentile during growth, although some change above and below is normal.
4. Measurements <10th and >85th may indicate the child is at risk for medical/nutritional problems and should be carefully checked for accuracy; referral may be indicated.
5. Based on the growth percentiles calculated by Compass, the system will automatically assign nutrition risk factors for underweight, at risk of becoming overweight, overweight, and short stature at certification visits. At mid-certification visits these risk factors must be assigned manually if they did not apply at the time of the certification visit. The nutrition risk factors for "inadequate or potentially inadequate growth" are subjective risk factors and must always be assigned manually based on the WIC staff person's assessment.

## Prenatal Weight Gain

A woman's weight gain during pregnancy is **very important** in influencing the outcome of her pregnancy. Women who do not gain adequate weight during pregnancy are more likely to give birth to low birth weight (LBW) infants. These infants are less likely to be healthy at birth, are more likely to have serious medical complications, have longer hospital stays and are more likely to die shortly after birth. Excessive weight gain during pregnancy can also have negative effects. Excessive weight gain is associated with complications such as gestational diabetes and difficulties during delivery. Excess weight may also stay with a woman after pregnancy, thus impacting her health for the future.

Because of the strong impact weight gain has on pregnancy, screening for optimal weight gain has become an integral part of the WIC Program. At certification, pregnant women are weighed and the weight is entered into the Anthropometrics panel. This weight measurement will be automatically plotted on the Prenatal Weight Gain Chart. Weeks gestation is measured in increments of two weeks. Weight is plotted in increments of four pounds. Weights at follow-up visits are entered and plotted on the chart to enable us to monitor the weight gain pattern. By tracking a woman's weight gain on the Prenatal Weight Gain Chart, recommendations can be made to help a woman make changes in her diet for an optimal outcome to her pregnancy.

Pre-pregnancy or pre-pregnancy weight is the weight of a woman before conception. There are two aspects of weight gain, which are important to monitor in pregnancy. One is the total **amount** of weight gain and the other is the **rate** of weight gain. The recommended amount of total weight a woman should gain during pregnancy is determined by her weight status before pregnancy or **prepregnancy BMI**.

To determine if a woman is normal weight, overweight, or underweight WIC uses BMI. The Compass system calculates BMI for each WIC participant. A woman's Current BMI can be found on the Anthropometric panel.

## Section II: Anthropometry

Below is another resource for determining BMI if needed.

The table displays the different classifications; Underweight BMI, Normal Weight BMI, Overweight BMI and Obese BMI.

BMI Table for Determining Weight Classification for Women *				
Height (Inches)	Underweight BMI <18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI > 30.0
58"	<89 lbs	89-118 lbs	119-142 lbs	>142 lbs
59"	<92 lbs	92-123 lbs	124-147 lbs	>147 lbs
60"	<95 lbs	95-127 lbs	128-152 lbs	>152 lbs
61"	<98 lbs	98-131 lbs	132-157 lbs	>157 lbs
62"	<101 lbs	101-135 lbs	136-163 lbs	>163 lbs
63"	<105 lbs	105-140 lbs	141-168 lbs	>168 lbs
64"	<108 lbs	108-144 lbs	145-173 lbs	>173 lbs
65"	<111 lbs	111-149 lbs	150-179 lbs	>179 lbs
66"	<115 lbs	115-154 lbs	155-185 lbs	>185 lbs
67"	<118 lbs	118-158 lbs	159-190 lbs	>190 lbs
68"	<122 lbs	122-163 lbs	164-196 lbs	>196 lbs
69"	<125 lbs	125-168 lbs	169-202 lbs	>202 lbs
70"	<129 lbs	129-173 lbs	174-208 lbs	>208 lbs
71"	<133 lbs	133-178 lbs	179-214 lbs	>214 lbs
72"	<137 lbs	137-183 lbs	184-220 lbs	>220 lbs

\* Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

The nine months of pregnancy are divided into three trimesters. The first trimester ends at 14 weeks and the second trimester ends at 27 weeks. The prepregnancy BMI is used to determine which types of lines are used for the target weight gain range. There is a minimum line that represents the lowest amount of weight gain in the recommended range and the maximum line that represents the highest amount of weight gain in the recommended range.

Low maternal weight gain, maternal weight loss during pregnancy and high maternal weight gain are all considered high risk and are assigned by the WIC staff member making the assessment. Low Maternal Weight Gain and High Maternal Weight Gain are manually assigned on the Anthropometric panel in Compass. Maternal Weight Loss During Pregnancy is manually assigned in the Risking Screen under Anthropometric Risks. There should be a referral to a high risk counselor within 30 days of the visit when these risk factor.

### Low Maternal Weight Gain – NRF #131

Any time during pregnancy when weight plots below the bottom line/below the recommended weight gain range.

### Maternal Weight Loss During Pregnancy – NRF #132

- ▶ any weight loss below pre-pregnancy weight during the first trimester (14-40 weeks gestation)
- ▶ any weight loss of 2 pounds or more in the second or third trimesters

### High Maternal Weight Gain – NRF #133

Any time during a singleton pregnancy when weight plots above the recommended weight gain range or top line on the Prenatal Weight Gain Chart.

In addition to the total **amount** of weight a woman gains during pregnancy the **rate** at which she gains weight has implications for a healthy outcome to pregnancy. Ideally a pregnant woman would follow her recommended weight gain curve. If you look at the weight gain curves on the Prenatal Weight Gain Chart you will notice that the majority of the weight gain occurs during the last 2 trimesters of pregnancy. It is not recommended that a woman gain all or even a third of her weight during the first

trimester of pregnancy.

Ideally her weight gain should be similar (though it does not need to be exactly the same) to the curves on the Prenatal Weight Gain Chart.

The target weight gain range for pregnancy is as follows:

Classification	BMI	Recommended Weight Gain
Underweight	<18.5	28-40 pounds
Normal	18.5— 24.9	25-35 pounds
Overweight	25-29.9	15-25 pounds
Obese	≥30	11-20 pounds

## Helpful Hints

### Unknown Pre-pregnancy Weight

What if the woman does not know her pre-pregnancy weight? Most women will have some estimate of their pre-pregnancy weight. If the value seems reasonable in comparison to the woman’s current weight use the estimated weight. Questions about weight gain or loss since becoming pregnant may also be useful in helping to estimate a woman’s pre-pregnancy weight based on her current weight.

If a woman has no estimate of her pre-pregnancy weight and she is unsure if she has gained or lost weight compared to her current weight, it may be necessary for the WIC staff person to estimate the woman’s pre-pregnancy weight. Does the woman appear to have been normal weight, underweight, or overweight right before she became pregnant? Discussion with the woman may help to answer this question.

In order to calculate unknown pre-pregnancy weight staff will need to use a current *Prenatal Weight Gain Chart* (see Appendix A). The estimate pre-pregnancy weight is done using current weight, the bottom line of the target weight gain range and current weeks gestation. For example, if a woman is currently 140 # and 12 weeks pregnant with a normal pre-pregnancy BMI, her estimated pre-pregnancy weight would be 138#. At 12 weeks the lower line of the target weight gain curve indicates she should have gained 2#.

Use this weight as her estimated pre-pregnancy weight in Compass. Note in her Compass education record that her pre-pregnancy weight is estimated. The same would be done for underweight, overweight, and obese women using their appropriate weight gain curves.

### Determining Weeks Gestation

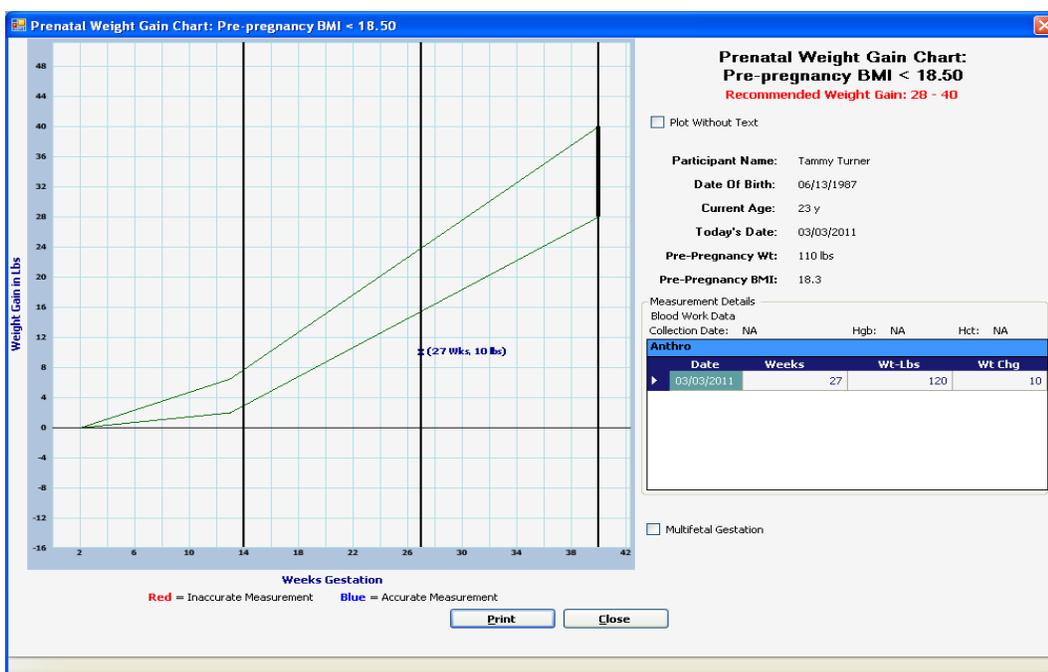
How is the number of weeks gestation determined? WIC staff should use the number of weeks gestation calculated by Compass. The value given by Compass should always be used when recording data in WIC records. The week’s gestation can be found on the Compass Pregnancy screen in Clinic Services and is also found in the heading under Weeks Gestation.

### Changes in the Expected Delivery Date – EDD

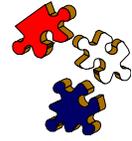
If a woman reports that her expected delivery date has changed since the previous visit, this information is updated in the Pregnancy panel in the Assessment portion of Clinic Services. Select the “Edit” button and change the EDD. The system will automatically update the LMP based on this information.

### Frequency of Weights During Pregnancy

How often should a woman be weighed during her pregnancy? Ideally at each WIC visit. WIC regulations require that a woman be weighed at least once each trimester while she is on the WIC Program. Because of the importance of a woman’s weight gain in the outcome of her pregnancy, and because it is an easy measurement to obtain, it is recommended a pregnant women be weighed at all WIC visits.



**#7 Practice!**



Refer to the Prenatal Weight Gain Chart on the previous page.

Participant Name: Tammy Turner

Date of Birth: 06-13-87

Age: 23 years

Today's Date: 3-3-11

Pre-pregnancy Weight: 110 pounds

Pre-pregnancy BMI: 18.3

Weeks gestation: 27

Current Weight: 120 pounds

1. What is the recommended weight gain range for Tammy?
2. What risk factor should be assigned to Tammy based on her weight gain?

## Section III: Hemoglobin

Iron is a very important mineral for the human body. It is found in every cell of the body and is required for the normal function of each cell. Brain cells need iron to make special chemicals called neurotransmitters so that they can process thoughts. Muscles need iron so that they can get energy from food. The blood needs iron so that it can carry oxygen to all parts of the body. The immune system needs iron to kill bacteria that cause illness. Taste buds on the tongue need iron so that food tastes right. Even fingernails need iron so that they can be formed correctly.

Without adequate iron in the body, changes occur that gradually alter the way the body functions. A person will often feel tired and weak. Muscles can't get enough energy or oxygen to work properly. A person may look pale because their blood does not have enough red blood cells (the part of the blood that carries oxygen) and so they don't have much color. Children without adequate iron do not grow well (in height or weight) and their brains do not develop properly. Food may start to taste "funny" and occasionally some people may even start to eat strange things like paint chips, dirt, or moth balls because of cravings not satisfied by food. This condition is called Pica which is the abnormal craving for substances that are generally not considered food. Pica can cause serious harm to a person and needs to be corrected. Anemia can also cause the immune system to not function well so the person gets sick easily. Pregnant women with anemia are more likely to give **birth** to low birth weight and premature infants. Low iron can also cause complications during delivery.

Iron is of special interest to WIC because the populations served by WIC are the most likely to be deficient in iron. Iron deficiency is the most common nutritional deficiency in the world, but it is most common in growing children and women, especially pregnant women. It is also more commonly seen in low income people. For this reason WIC regularly tests participants to determine if they are iron deficient.

**PICA:** Pica is the abnormal craving for substances that are generally not considered food. Items that a person typically may crave include dirt, ice, paint chips, moth balls, hair, and others. Pica can cause serious harm to a person and needs to be corrected. Pica was named after the Magpie bird (*Pica pica*) because magpies often search for food in garbage containers.

It is impossible to tell if a person is low in iron by looking at them or by asking them how they feel. While symptoms such as feeling tired or looking pale may indicate low iron, these symptoms sometimes do not occur until a person's iron level is very low. Many factors affect how and when symptoms of iron deficiency appear. Some people show symptoms of iron deficiency more easily than others.

The only way to be sure if a person has adequate iron is to do some type of blood test. There are two tests most commonly used to screen for iron deficiency: hemoglobin concentration and hematocrit. Most Colorado WIC clinics determine iron level by measuring hemoglobin. A few clinics perform the hematocrit blood test. Both tests are indicators of how much iron a person has in their body.

Blood is made of two major parts. One part is the red blood cells. The other part is called plasma. Plasma is a clear fluid that makes blood a liquid. Red blood cells float around in the plasma and make blood look red.

### **Hemoglobin**

Hemoglobin is a protein in red blood cells. Hemoglobin is what makes red blood cells look red and is where most of the iron is located in the red blood cell. So the more hemoglobin there is in blood, the more iron in the body. Measuring hemoglobin concentration is a more accurate way to screen for iron deficiency than using a hematocrit values.

To perform a hemoglobin test, blood is collected in a vessel that contains a substance that reacts with the blood to release the hemoglobin. The vessel is placed in a special instrument that measures the amount of hemoglobin by determining how red the blood appears to the analyzer.

### **Hematocrit**

Some participants may bring a hematocrit value taken at their doctor's to their WIC appointment. The value represents the amount of red blood cells in their blood. Because red blood cells contain large amounts of iron, the more red blood cells a person has the more iron they generally have in their body.

If you fill a tube with blood and spin it at very high speeds the red blood cells will separate from the plasma and fall to the bottom of the tube. The tube would then be filled with a clear fluid at the top and a bunch of red blood cells on the bottom. You can then measure the amount of red blood cells in the tube. If the tube is half-full of red blood cells and half full of plasma we would say that 50% (half) of the blood is red blood cells. Fifty percent would then be the hematocrit. If the tube were only one-third (33%) full of red blood cells and two-thirds (66%) full of plasma the hematocrit would be 33%. A hematocrit simply tells you what percentage of the blood are red blood cells. The more red blood cells you have the more iron you have in the blood. The more iron in the blood the more iron in the body. In general, normal hematocrit values are around 34-47%.

<p><b>Hematocrit:</b> After spinning blood in a centrifuge, the hematocrit is the percentage of the blood that is made up of red blood cells.</p>
---

### **Variations In Normal Hemoglobin and Hematocrit Values**

Normal hemoglobin and hematocrit values vary according to age and sex, whether a person is pregnant, whether a person smokes, and by the altitude where a person lives. Infants tend to have lower values than older children. Women tend to have lower values than men. Pregnant women have lower values than women who are not pregnant (due to dilutional variances) and normal values vary according to the

trimester of the woman's pregnancy. People who smoke or live at high altitudes tend to have higher values than people who do not smoke or who live at lower altitudes. Tables in Appendix A at the back of this module show values for hemoglobin and hematocrit that are below normal and are considered low. The values listed in the tables give the cut-off values to determine when the person does not have enough iron.

When looking at the tables notice that one set of tables gives hemoglobin values while the other set gives hematocrit values. Within each set are two other tables. One table gives the value at which iron is considered low and the other gives the values at which iron is considered extremely low. Notice that on each table you need to know the elevation of your clinic, the age of the participant, whether the woman is pregnant and which trimester she is in, and finally, whether the woman smokes.

### **Smoking and Altitude**

Smoking and altitude cause "normal" hemoglobin and hematocrit values to be higher than usual. This should not be taken to mean that smoking or living at high altitude gives you more iron or makes you healthier. Smoking is a significant health risk for a pregnant woman, her unborn child, and her other children.

Smoking and living at high altitude make it difficult for the blood to absorb and carry adequate oxygen to the various parts of the body. The body tries to compensate for this difficulty by making extra blood cells. This increases the body's requirement for iron and makes hemoglobin values higher than normal. As an example, if a woman lived at sea level and had a hemoglobin of 12.3 gm/dl, her hemoglobin would be considered normal. If she then moved to a city at 9000 feet above sea level her blood would have difficulty carrying enough oxygen and would try to make more red blood cells to raise her hemoglobin above 13.4 gm/dl to compensate. If her hemoglobin stayed at 12.3 gm/dl she would have difficulty exercising or carrying out normal daily activities. Her body would need more iron so that she could make more blood cells to carry adequate oxygen to body tissues such as muscle and brain.

### **Anemia**

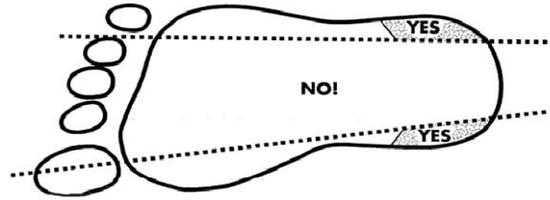
When a person does not get enough iron they stop making hemoglobin. Without hemoglobin the body stops making red blood cells. At some point the hemoglobin gets low enough that the person is said to be anemic. People who are anemic usually have a variety of symptoms; the most common one is that they feel tired. They often look pale, have trouble concentrating, feel cold, and can have some changes in their skin, tongue, and appetite.

If anemia gets severe a person will feel very poorly and the anemia can even become life threatening. It is important to note that different people react to anemia differently. As was stated earlier, just because a participant says that she feels fine does not mean that she is not anemic. Some people become anemic with few symptoms, at least until the anemia becomes very severe.

The tables in Appendix A at the back of this module show the hemoglobin and hematocrit values used by Compass to assign the nutrition risk factors for Low Hemoglobin: NRF 201 indicates low hemoglobin or hematocrit levels and is considered low risk. This risk factor is automatically assigned. NRF 201b is severely low hemoglobin/hematocrit levels and is manually assigned by the WIC staff person.

Participants identified with severely low hemoglobin who cannot see the WIC High Risk Counselor within 24 hours must be referred to their medical provider within 24 hours and to the WIC high risk counselor within 30 days for follow-up care. A printout of the participant's hemoglobin value must be given to client and faxed to the medical provider.

It is important for WIC staff members to remember that they are not diagnosing anemia. A diagnosis for anemia can only be made by a physician or other health care professional such as a physician assistant or nurse practitioner. The hemoglobin performed in the WIC clinic gives us the information to determine that the participant is likely to be low in iron, to assign the applicable nutrition risk factor, to guide education, and to help make appropriate referrals.



## Hemoglobin Sample Collection

In order to ensure accurate results, a standard procedure must be used each time a hemoglobin test is performed. The reference used by the Colorado WIC Program is called *Procedures and Devices for the Collection of Diagnostic Capillary Blood Specimens; Approved Standard- Sixth Edition; Vol. 28, No. 25; H04-A6, 2008 published by: Clinical and Laboratory Standards Institute\**

Please refer to your local agency policy and procedures around blood collection for further information.

### General Information for Blood Collection Procedure:

Gloves should be worn at all times during the testing procedure and all appropriate laboratory safety guidelines should be followed. Please refer to your local agency safety guidelines and procedures for reporting any blood or body fluid exposure.

The preferred blood collection site referenced in the *CLSI Standard\** for infants is the heel. (Page 5) Defer to your local agency standard for further guidance on blood collection for infants.

For children, blood is obtained from either middle fingers. Blood flow is improved if the infants or child's foot/hand is massaged before a stick is made to draw blood. It is also helpful to keep the infant/child's foot or hand below the heart.

### Equipment

The following equipment is **required** to obtain a blood sample for the hemoglobin test:

- HemoCue Hb 201<sup>+</sup> Analyzer
- gloves
- single-use lancet
- HemoCue Hb 201<sup>+</sup> microcuvettes (store at room temperature)
- gauze or lint-free tissue
- rubbing alcohol
- band-aids (as needed)
- sharps container or other approved disposable container

Lancet – device used to pierce the skin to draw blood

### A. Start Up Procedure

1. Organize all of the equipment you will need to obtain a hemoglobin sample (such as lancet, cuvette, band-aid)
2. Pull the cuvette holder out of the loading position. Press and hold the On/Off button (left button) until the display is activated.

3. The display shows the version number of the program, after which it will show an hourglass and “Hb.” During this time the analyzer will automatically verify the performance of the optronic unit (the unit that reads the hemoglobin).
4. After approximately 10 seconds, the display will show 3 flashing dashes and the HemoCue symbol. This indicates the HemoCue is ready for use.

### B. Quality Control

The HemoCue Hb 201+ analyzer has an internal electronic “self test.” Every time the analyzer is turned on, it will automatically verify the performance of the optronic unit of the analyzer. This test is performed at regular intervals if the analyzer is on.

### C. Capillary Testing

1. After start-up, the cuvette holder should be in loading position and the display should show 3 flashing dashes and the HemoCue symbol.
2. The hand should be warm and relaxed. It is a good idea to heat cold hands in warm water, or by other means, before sampling to increase the blood circulation. It may be helpful to have the participant swing their hand in a downward motion below the heart. The participant’s fingers should be straight but not tense. For best results, use the middle or ring finger. Avoid sampling fingers with rings.
3. Remove a cuvette from individual wrapping or vial (which ever applies). If a vial is used, recap vial immediately.
4. Clean the puncture site with alcohol. Wipe off the alcohol with a clean, dry lint-free wipe or allow it to air dry completely.
5. Using your thumb, lightly press the finger from the top of the distal knuckle (the knuckle closest to the end of the finger) to the tip. This stimulates the blood flow towards the sampling point.
6. Position the lancet device so that the puncture will be across the lines of the fingerprint. Press the lancet firmly against the finger prior to activating the lancet to aid in obtaining a good sample.
7. While maintaining gentle pressure on the tip of the finger, perform the stick off-center on the fingertip. Discard the lancet in a sharps container.
8. Using dry gauze or other lint-free tissue, wipes away the first two or three large drops of blood, applying light pressure as needed again until another drop of blood appears. This stimulates blood flow and lessens the likelihood of a dilutional effect by interstitial fluid (the fluid in between the cells). AVOID “milking the finger.”

**Lancet:** Device used to pierce the skin to draw blood.

Only single-use, disposable type lancets with retractable blades should be used.

**NEVER** reuse a lancet from one participant on another – this includes between a mother and her own child.

### Caution:

Always use clean gauze or other swab. If it falls on the floor, throw it away. Never reuse swabs or gauze between participants.

9. Make sure the drop of blood is big enough to fill the cuvette completely with one continuous flow. Hold the cuvette opposite the filling end and introduce the cuvette tip into the middle of the drop of blood. Fill the cuvette in one continuous process. Do not refill a partially filled cuvette.
10. Wipe off any excess blood from the outside of the cuvette using a clean, lint-free tissue, taking care not to touch the open end of the cuvette.
11. Visually inspect the cuvette for air bubbles. If bubbles are present, discard the cuvette and redo.

12. The filled cuvette should be analyzed immediately, or at least 10 minutes after it has been filled. Place the filled cuvette into the cuvette holder and gently slide the holder into the measuring position.
13. During measurement, an hourglass will be shown on the display.
14. The result will be displayed within 15-60 seconds and will remain on the display as long as the cuvette holder is in the measuring position. When operating on battery power, the analyzer will automatically turn off after approximately 5 minutes.
15. Record the hemoglobin value. Once at your desk, enter the result into the Compass Blood panel.
16. Pull the cuvette holder out to the loading position. Remove the cuvette and discard it in the sharps container or appropriate biohazard container, following local procedures for disposal.
17. When the display shows 3 flashing dashes and the HemoCue symbol, the analyzer is ready for the next measurement.

### Maintenance

1. Cuvette Holder:  
The cuvette holder should be removed at the end of each day of use for cleaning.
  - a) Check that the analyzer is turned off (the display should be blank).
  - b) Pull the cuvette holder out of loading position. Using a pointed object, carefully press the small catch in the upper right hand corner of the cuvette holder.
  - c) While pressing the catch, carefully move the cuvette holder to the left for removal.
  - d) Clean the cuvette holder with alcohol or a mild detergent and allow it to dry completely before placing it in the analyzer.
2. Analyzer  
The exterior of the machine may be cleaned as necessary with alcohol or a mild soap solution.
3. Optronic Unit  
The optronic unit should be cleaned as directed in the Troubleshooting Guide of the HemoCue Hb201+ Operating Manual located in each clinic. See the instructions in the Maintenance Section of the manual or contact HemoCue Technical Service at 800-426-7256.

### **Frequency of Hemoglobin Screening**

### **Pregnant Women**

WIC requires that hemoglobin screening be performed on pregnant women at their certification visits. Adequate iron is critical during pregnancy. A woman who does not have adequate iron is more likely to give birth to a low birth weight or premature infant. She is more likely to have complications during her pregnancy and have difficult labor. The only way a woman can know if her iron is adequate is by testing.

A pregnant woman who is found to have severely low hemoglobin/hematocrit levels should be designated as high risk and referred to the WIC RD/RN within 30 days.

### **Hemoglobin Screening for Pregnant Women**

<u>Required</u>	Certification Visit
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### Postpartum Women

Non-breastfeeding postpartum and breastfeeding postpartum women are required to have their hemoglobin measured at their first certification after delivery. Pregnancy results in a huge loss of iron from the woman's body. Some iron is used to form the infant and to give the infant a supply of iron for the first few months of life. During delivery a woman loses blood, the placenta, and other tissues, which contained large amounts of iron. Some of this iron needs to be replaced. It is important for the woman to replace this iron to meet the needs of her own body as well as to ensure that she has adequate stores should she become pregnant in the near future. It takes a long time to completely replace the iron lost during pregnancy.

#### **Hemoglobin Screening for Postpartum Women**

<u>Required</u>	Breastfeeding Woman - At certification after delivery.
	Non-Breastfeeding Woman - At certification after delivery.

**Postpartum women identified with severely low hemoglobin that cannot see the WIC High Risk Counselor within 24 hours must be referred to their medical provider within 24 hours and to the WIC high risk counselor within 30 days for follow-up care. A printout of the participant's hemoglobin value must be given to client. Staff members are also encouraged to fax the hemoglobin value to the medical provider.**

### **Infants**

Infants are born with a store of iron in their bodies that they receive from their mothers during pregnancy. Infant iron stores usually last 4-6 months. Because of this, hemoglobin screening is not routinely performed to certify infants on the WIC Program except in certain circumstances as listed below:

- Infants initially certified on the WIC Program between 6 and 11 months of age must have a hemoglobin screening performed at the time of certification.
- All infants who do not routinely receive an iron source at 9 months of age, such as iron-fortified formula, iron-fortified cereals, meats, or iron supplements must have hemoglobin screening performed at that time or at 3 months after their initial certification if their initial certification was at 6, 7, or 8 months of age.

#### **Hemoglobin Screening for Infants**

<u>Required</u>	Any infant who is initially certified between 6 and 11 months of age must have a hemoglobin screening at the certification visit.
	Any infant who is not routinely receiving an iron source at 9 months of age, such as iron fortified formula, iron-fortified cereals, meats, after their initial certification if they were certified after 7 months of age.

**Infants identified with severely low hemoglobin that cannot see the WIC High Risk Counselor within 24 hours must be referred to their medical provider within 24 hours and to the WIC high risk counselor within 30 days for follow-up care. A printout of the participant's hemoglobin value must be given to client and faxed to the medical provider.**

## Children

Children are required to have their hemoglobin screened at their certification/recertification visit at one year of age, at certification/recertification at around 18 months, and then once a year thereafter as long as their hemoglobin value is within normal limits. If a child has low hemoglobin it should be repeated at each certification until it is normal.

**Children identified with severely low hemoglobin that cannot see the WIC High Risk Counselor within 24 hours must be referred to their medical provider within 24 hours and to the WIC high risk counselor within 30 days for follow-up care. A printout of the participant’s hemoglobin value must be given to client and faxed to the medical provider.**

### Hemoglobin Screening for Children

<u>Required</u>	Certification/Recertification Visit at one year  Certification/Recertification Visit at around 18 months*  One time per year at Certification/Recertification Visits after 18 months  <b>IF</b> the hemoglobin value is normal <u>or</u> every Recertification Visit after 18 months of age until the hemoglobin value is normal
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\*A child who is certified between 13-17 months must have a hemoglobin screening at their next certification visit at 19-23 months. Around 18 months is when a significant number of children become anemic. In order to identify these anemic children it is important to check their hemoglobin at 18 months or shortly afterwards (up until 23 months). Once this hemoglobin has been collected and, if it is normal, then hemoglobin screening only needs to be repeated one time per year.

### Hemoglobin/Hematocrit Tests Performed Outside of the WIC Clinic

Hemoglobin/hematocrit tests may be performed by WIC staff or by other medical personnel who are qualified to perform these tests. A participant may bring a hemoglobin/hematocrit value from their health care provider’s office for certification as long as:

- For a woman: The hemoglobin/hematocrit value must have been obtained during the physiological state the woman is being certified for. For example, for a pregnant woman, the hemoglobin/hematocrit must have been performed at some time during the current pregnancy for which she is being certified. For a breastfeeding or postpartum woman the hemoglobin/hematocrit must have been performed after end of the woman’s most recent pregnancy.
- For an infant or child: The hemoglobin/hematocrit must have been performed between 9-12 months of age, again between 15-18 months of age, and at least yearly after 18 months of age assuming the previous value was normal. If the previous value is abnormal the

hemoglobin/hematocrit should be repeated every 6 months until a normal value is obtained and then yearly thereafter.

WIC staff need to have some assurance that hemoglobin/hematocrit tests performed outside the WIC office are by qualified personnel and that the values presented by the WIC participant are the true values which were determined. The value should be written on paper (such as a prescription pad) that shows its source.

### **What if a child is uncontrollable and highly agitated so that a hemoglobin screening cannot be performed?**

A WIC participant may be certified without a hemoglobin value under such circumstances as long as they have another qualifying nutrition risk factor. The participant must be scheduled for a repeat screening attempt within 90 days of their certification date unless the participant has a personal, cultural, or religious belief that does not allow the test to be performed. When a hemoglobin test is refused the reasons must be documented in the participant's education record.

### **Repeat Hemoglobin When Low Values Are Obtained**

How soon should hemoglobin tests be repeated if values are found to be low? This depends on the situation and the policy of the local WIC clinic. If the low hemoglobin has been reported to the participant's primary care provider who will monitor the situation, there may not be any need for a repeat test until the participant's next recertification. If the participant has no health care provider the participant should be encouraged to obtain health care and report the low value to the health care provider who can then follow it. Very low hemoglobin values that make participants high risk need to be referred to the WIC RD/RN who will make the determination as to when or if follow-up hemoglobin tests should be performed in the WIC clinic.

Low hemoglobin values do not change quickly even when supplemental iron is given. If a clinic has a policy of repeating low values, the repeat test should be performed one month or more after the low value was obtained. The timing for repeat measurements, however, depends on the circumstances and the severity of the low hemoglobin value.

WIC resources may only be used for one repeat hemoglobin test per certification period.

### **High Hemoglobin Values**

Occasionally a person being certified will have a hemoglobin value that is considered "high." While there are no nutrition risk factors associated with "high" hemoglobin values there may still be concerns that need to be addressed. Very high hemoglobin values can be associated with certain kinds of blood diseases, carbon monoxide poisoning, and for pregnant women, higher risk of premature labor and delivery of a low birth weight infant. High values should be uncommon. Whenever a high value is encountered staff may want to consider repeating the test to confirm the value. Technique should be reviewed to ensure that the test is being performed properly.

### **Pregnant Women**

High hemoglobin values during pregnancy are associated with premature birth and delivery of a low birth weight infant. Women with high values should be referred to their primary health care provider with information about the level obtained in the WIC clinic. The primary care provider will then have to assess the hemoglobin value as a part of the woman's total health and the progress of her pregnancy. A woman should not stop taking her prenatal vitamin with iron. It is thought that high hemoglobin

values in pregnancy are often the result of inadequate plasma expansion and not because of too many red blood cells or too much iron.

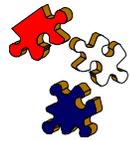
In some cases a woman may have an elevated hemoglobin level because she is dehydrated. This could occur with severe nausea and vomiting. In such cases the woman should be instructed to increase her fluid intake and consult with her primary care provider.

There are no precise values for determining when hemoglobin is “high” for a pregnant woman. In general, values greater than 17 mg/dl should be referred to a physician.

### Children

High hemoglobin values in children are also uncommon. When high values are identified they should be confirmed and the participant should be given the information to share with their primary care provider (PCP) at their next PCP visit. True high values can be indicative of a number of conditions that need to be reviewed by a physician. A child who is dehydrated due to a condition such as illnesses with vomiting and diarrhea may have high hemoglobin and should be encouraged to drink adequate fluids. Cut-off values, which determine when hemoglobin is excessively high, have not been determined.

### #8 Practice!



The tables in Appendix B give normal values for hemoglobin and hematocrit. The tables show the minimal values that are considered normal. Look at one of the tables and notice that the ones for children indicate normal values based on age and the altitude at which the child lives. The tables for pregnant women use altitude, smoking, and trimester of pregnancy to determine the minimal normal value.

When certifying a participant on the WIC Program the Compass computer will risk the person for low hemoglobin/hematocrit without WIC staff having to look up these values. Severely Low Hemoglobin/Hematocrit; NRF 201b is manually assigned by the WIC staff person and needs a referral to the high risk counselor within 30 days. If, however, you perform a hemoglobin or hematocrit on a person between certification visits you need to manually look up the minimal values and determine if a person should be risked for low hemoglobin/hematocrit or severely low hemoglobin/hematocrit.

1. For the following participants give the hemoglobin level that would result in them being assigned the NRF 201 for low hemoglobin/hematocrit and for NRF 201b severely low hemoglobin/hematocrit.

A. Pregnant woman who lives in Lakewood (elevation 5440 feet) is in her third trimester. She does not smoke.

NRF 201 \_\_\_\_\_ NRF 201b \_\_\_\_\_

B. Breastfeeding woman who lives in Durango (elevation 6512 feet) and is a non-smoker.

NRF 201 \_\_\_\_\_ NRF 201b \_\_\_\_\_

C. Postpartum woman smoker (1/2 pack of cigarettes per day) who lives in Leadville (elevation 10,152 feet).

NRF 201 \_\_\_\_\_ NRF 201b \_\_\_\_\_

D. Three-year-old child who lives in Springfield (elevation 4365 feet).

NRF 201 \_\_\_\_\_ NRF 201b \_\_\_\_\_

2. What is the iron-containing substance found in red blood cells that combine with oxygen to deliver oxygen to the cells of the body?

3. List three symptoms that indicate a person may have anemia:

- A.
- B.
- C.

4. A person can be sure that they are not anemic if they do not feel tired.

- A. True
- B. False

5. Complete the following describing when hemoglobin screenings are required:

A. Pregnant woman with prenatal care:

\_\_\_\_\_

B. Two-year-old child who with a normal hemoglobin:

\_\_\_\_\_

C. Five-day-old infant who is receiving iron-fortified formula:

\_\_\_\_\_

D. Infant receiving iron-fortified formula who is being certified at seven months of age:

\_\_\_\_\_

E. Breastfeeding woman (10 days postpartum):

\_\_\_\_\_

F. Three-year-old child with a low hemoglobin:

\_\_\_\_\_

6. Under what condition must a hemoglobin be performed on a nine-month-old infant who was originally certified at 5 days of age?

7. A pregnant woman comes into WIC to be certified on the WIC Program. She just found out that she is 4 weeks pregnant. She had blood work done at her physician's office 2 months ago and has brought paperwork from the physician's office showing her hematocrit. She would rather not be poked again for a hemoglobin value. What two conditions determine whether the hemoglobin or hematocrit value from the physician's office may be accepted for her WIC certification?

A.

B.

Can the hematocrit from her physician's office be used for her WIC certification?

\_\_\_ Yes

\_\_\_ No

## Precautions to Prevent the Spread of Infection

**Please refer to your local health department policies and guidelines for universal precautions around blood collection.**

Universal Precautions:

Universal precautions are work practices that help prevent contact with blood and certain other body fluids. They include use of protective barriers such as gloves, gowns, masks and goggles. They also include safe work practices such as proper disposal of sharps and proper hand washing.

This section of the module presents a set of guidelines that all WIC staff should follow to protect themselves and participants from infections while working in the WIC clinic. People are wonderful, but unfortunately they also carry viruses and bacteria that can make a person sick. Even small infants and people who look healthy can carry viruses and bacteria. In fact, all people carry viruses and bacteria in their bodies. Many of these viruses and bacteria can make another person sick if they are transferred in the right way. This section of the manual gives information on how to prevent the spread of disease from one person to another. This information is important in the WIC clinic and in your personal life outside of the WIC clinic.

There are four ways that germs (bacteria and viruses) can be spread:

The spread of germs:

1. Airborne
2. Direct Contact
3. Fecal-oral Route
4. Blood Contact

1. **Airborne.** This happens when people sneeze or cough. They may sneeze directly on you or they may sneeze into their hands and then touch doorknobs, railings, papers, pens, or pencils. When you touch these objects you get the germs. Wash your hands often to protect yourself. Cover your mouth when you cough or sneeze and then wash your hands. As much as possible avoid people who are coughing and sneezing, especially if they are close by and/or do not cover their mouths.
2. **Direct Contact.** Direct contact between two people can sometimes result in transmission of disease. Body lice can be transmitted from one child to another by direct contact. Certain skin diseases can be spread by direct contact. Open wounds and infections can spread germs through direct contact. If someone has an infection in their eye they can transmit it to you by rubbing their eye and then shaking hands with you. When you rub your eye you then get their germs and their infection in your eye. Again, wash your hands often. Avoid contact with open wounds or infections of another person.
3. **Fecal-Oral Route.** This sounds really disgusting, but it happens more than you may think. It can be a problem in a WIC clinic. Kids with dirty diapers provide plenty of fecal matter. Also anyone who uses the restroom without washing their hands may provide fecal material. The amount of fecal matter may be very small, so small you cannot even see it. It may be on a toy, a doorknob, the measuring board, etc. If you touch any of these and then eat your lunch without washing your hands, you will get the fecal germs. Protect yourself by simply washing your hands.
4. **Blood and Body Fluid Contact.** ANY body fluid, but especially blood, can transmit infection from one person to another. Some of these infections can be pretty serious, so pay attention. If you follow some simple precautions you will keep yourself from being at risk and you will not put participants at risk. Always wear gloves when coming into contact with blood and body fluids. Do not touch fluids that come out of the human body, especially blood and feces. In WIC

we perform hemoglobin/hematocrit tests and we work with infants and children (who have dirty diapers or are in contact with other children with dirty diapers), so there is potential for you to contact another person's body fluids. Do not touch body fluids. If you do come in contact with another person's body fluids wash your hands or other place on your body where you came into contact with the fluid!!

Here are some ways to protect yourself from diseases spread by feces, blood, and other body fluids:

1. Whenever you may come in contact with body fluids, wear gloves. This includes when you are taking blood or cleaning up a mess that might include body fluids. This also includes when changing a child's diaper, cleaning up feces, urine, and/or vomit. Hand washing is required when you remove the gloves. When you are performing a hemoglobin test continue to wear your gloves or get a new pair as long as you are handling any equipment that may be contaminated with blood (such as removing the cuvette from the HemoCue Analyzer). Do not wear the gloves you use to collect blood to operate your computer. Germs are very small. You cannot see them. Gloves need to be discarded after use and between participants. Always discard gloves in designated containers. Do not carry germs from one participant to another.
2. Wash your hands. Wash your hands. Wash your hands- especially after handling infants and children-wash your hands.
3. If an accident does occur where blood or feces get on equipment or the counter top, clean those surfaces with a disinfecting solution and wear gloves. This can happen when parents change their children's diapers during height and weight measurements. Wash the counter with disinfectant and wash your hands.
4. Wash your hands after coughing, sneezing, or blowing your nose. Keep your hands out of your face and hair. Do not bite or chew your nails. Do not place objects such as pens and pencils in your mouth. They are not clean and may be contaminated.
5. All materials that are saturated with blood or body fluids need to be disposed of in a special way. For example, cotton used to clean up excess blood off a participant's finger should be disposed of in a special biohazard container or bag. NEVER touch the blood-soaked cotton with your bare hands. Remember, to wear gloves and wash your hands afterwards. Do not throw blood-soaked materials into the normal garbage.
6. Wash your hands. Wash your hands. Wash your hands. Wash your hands when you go on a break, before and after lunch, after you use the bathroom, and before you go home.
7. Regularly clean surfaces where infants and children are placed. Use a disinfectant. Wear gloves when disinfecting and wash your hands when done. If your clothes get splashed or soaked with blood or body fluids from another person, remove the clothes, wash the area of contact on your body, and report the incident to your supervisor. Your supervisor will give you instructions on how to handle the situation and on how to properly clean your clothes.
8. Wash your hands. Are you starting to see a trend here? Washing your hands is one of the single most important measures you can take to keep yourself from getting sick at work or at home.

9. Sharp objects such as lancets used for pricking a participant's finger or the capillary tube used to measure a person's hemoglobin need to be disposed of in a special sharps container that is labeled as a biohazard. These containers are designed to prevent the lancet or capillary tubes from accidentally puncturing anyone while disposing of these items. Some of the most serious types of infections occur when blood from one person (as on a used lancet) is injected into another person (as when the lancet somehow pricks someone else's finger during disposal). NEVER, NEVER, NEVER use the same lancet on more than one person, even when one person is the mother and the other is a child.

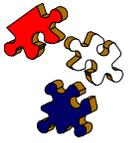
In the extremely rare event that someone, including yourself, gets stuck with a used lancet or capillary tube wash the area immediately with lots of soapy water and notify your supervisor IMMEDIATELY. There are types of medical treatment that can help prevent infection under these conditions.

If you ever stick yourself (or anyone else) with a used lancet or other sharp object notify your supervisor IMMEDIATELY. In the extremely rare event that blood is splattered on your skin or an open cut/wound, notify your supervisor IMMEDIATELY. **Clinics must have procedures in place to report, assess, and provide treatment when these types of accidents occur.**

#### Hand Washing Technique:

Use soap. Liquid soaps are better than bar soaps. Bar soaps can carry germs from one person to another. Wash your hands under warm running water. Rub your hands together for at least 30 seconds while washing them. Wash your whole hand including top, bottom, between fingers, and under nails. Rinse hands well and let water run off of your finger tips. Dry hands with a clean paper towel and then use the paper towel to turn off the faucet (remember that you turned on the faucet with your dirty hands!). Cloth towels should not be used to dry your hands if you intend to reuse them even once. Throw paper towels away after use. You should always wash your hands after using the restroom, before and after eating, after handling any body fluids, changing a child's diaper, disinfecting equipment, when you arrive at the clinic in the morning and before you go home and, if possible, between each participant with whom you have close contact (as in weights and lengths for infants).

**#9 Practice!**



1. The single most important action you can take to prevent the spread of infection is \_\_\_\_\_.
2. What are the four ways that germs can be spread?
  - A.
  - B.
  - C.
  - D.
3. Used single use lancets can be disposed of in any biohazard garbage container.
  - A. True
  - B. False
4. After taking blood it is important to keep your gloves on until you have discarded the filled cuvette.
  - A. True
  - B. False
5. When is it acceptable to reuse a lancet to get blood from more than one person?

What should you do if you accidentally stick yourself with a used lancet?

## Section IV: A Final Practice!

Now that you have read through the entire Screening Module and have completed all of the quizzes along the way it is time to put what you have learned into practice! In this practice exercise you will obtain heights, lengths, weights, and hemoglobin while your supervisor observes you. Your supervisor will score you using the monitoring sheets from Appendix C.

Do not get discouraged if at first you find it difficult to obtain lengths, heights, weights, or hemoglobin. Some of these measurements can be difficult under ideal conditions, but even more difficult when you are inexperienced and when the child or infant is angry or upset. With time and practice you will become skilled and the measurements will become routine and easy to perform. Learn to perform the measurements correctly. It may be tempting to take short cuts at first, but in the end you will have to relearn the correct techniques. It is easier to learn the techniques right the first time.

### **Infant Length and Weight**

Weigh and measure an infant. Measuring the length of an infant can be difficult. With practice, however, it will become easier and the accuracy of your measurement will improve. Have your supervisor observe you weighing and measuring the infant. Your supervisor will grade you using the Level I Observation Checklist in Appendix C. To score the form, one point is given for each item listed when performed properly.

### **Child Height and Weight (2 years of age and older)**

Weigh and measure a child. Have your supervisor observe you weighing and measuring a child. Your supervisor will grade you using the Level I Observation Checklist in Appendix C. To score the form, one point is given for each item listed when performed properly.

### **Adult Height and Weight**

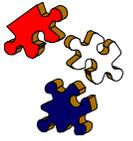
Weigh and measure an adult. Have your supervisor observe you weighing and measuring an adult. Your supervisor will grade you using the Level I Observation Checklist in Appendix C (use the section for a child). To score the form, one point is given for each item listed when performed properly.

### **Hemoglobin**

Have your supervisor observe you obtaining a hemoglobin, operating the HemoCue, and recording the results. Do not be discouraged if at first it is difficult to obtain good results with hemoglobin measurements. It takes practice. Continue to practice and soon you will be able to obtain accurate hemoglobin quickly, even from a screaming child! Your supervisor will score your technique using the monitoring sheet for blood specimen collection in Appendix C. To score the form, one point is given for each item listed when performed properly.

You are expected to get a perfect score for each of the above exercises. If necessary, repeat each exercise until you can achieve a perfect score. Once you have completed all of the exercises with a perfect score you are ready to go on to the Post Test at the end of this module.

## Section V: Answers to Practice!



### **#1 Practice!**

1. Anthropometry: height, weight, length  
Hematology: hematocrit, hemoglobin
2. B. False. This is how height is measured.
3. B. False. Height and length are not interchangeable.
4. Measurements must be done by a standard procedure so that:
  - one measurement can be compared accurately to another
  - measurements can be accurately compared against standards such as growth charts

### **#2 Practice!**

1. D, up to 2 years
2. The correct answer is B, height.
3. A, True
4. B, False

### **#3 Practice!**

1. False. Participants are always measured without shoes.
2. False. Participants are always measured without shoes.
3. True
4. False

### **#4 Practice!**

- A. True
- B. False
- C. True

**#5 Practice!**

- A. False
- B. True
- C. True
- D. True
- E. False. Measurements should be to the nearest 1/4 pound.

**#6 Practice!**

- 1. True
- 2. False
- 3. False
- 4. True
- 5. 60 days old
- 6. 5-7 months of age
- 7. Any two of the following:
  - Scales are different
  - Scales are not calibrated correctly
  - Different technique is used, for example an infant may be weighed dressed or may be weighed with shoes or a heavy coat
  - Infant may have eaten, emptied his/her bladder, or had a bowel movement between the visits

**#7 Practice!**

- 1. Refer to Prenatal Weight Gain Chart for Tammy Turner
- 2. Note all items are correct
- 3. 28-40 pounds
- 4. NRF 131 – Low Maternal Weight Gain

**#8 Practice!**

- 1. A. NRF 201 <11.5 gm/dl                      NRF 201b     <10.3 gm/dl
- B. NRF 201 <12.3 gm/dl%                NRF 201b     <10.6 gm/dl
- C. NRF 201 <14.5 gm/dl                    NRF 201b     <12.8 gm/dl
- D. NRF 201 <11.3 gm/dl                    NRF 201b     <9.6 gm/dl

2. Hemoglobin
3. Symptoms of Anemia  
Tired, pale, poor brain development or function, increased infections or illness, altered taste or appetite, deformed finger nails, poor growth, changes in the skin or tongue, muscle weakness, low birth weight, premature birth, complications during delivery.
4. False
5.
  - A. At certification
  - B. Once every year
  - C. Not until the infant is recertified as a child at one year of age
  - D. At certification
  - E. At certification
  - F. At each certification until the hematocrit is normal. After that once a year.
6. When the infant is not routinely receiving an iron source after 6 months of age. Iron sources include iron-fortified formula, iron-fortified infant cereal, meat or oral iron supplements.
7.
  - A. The hematocrit/hemoglobin value may not be more than 60 days old.
  - B. The hematocrit/hemoglobin must have been performed while the woman was pregnant for this pregnancy.

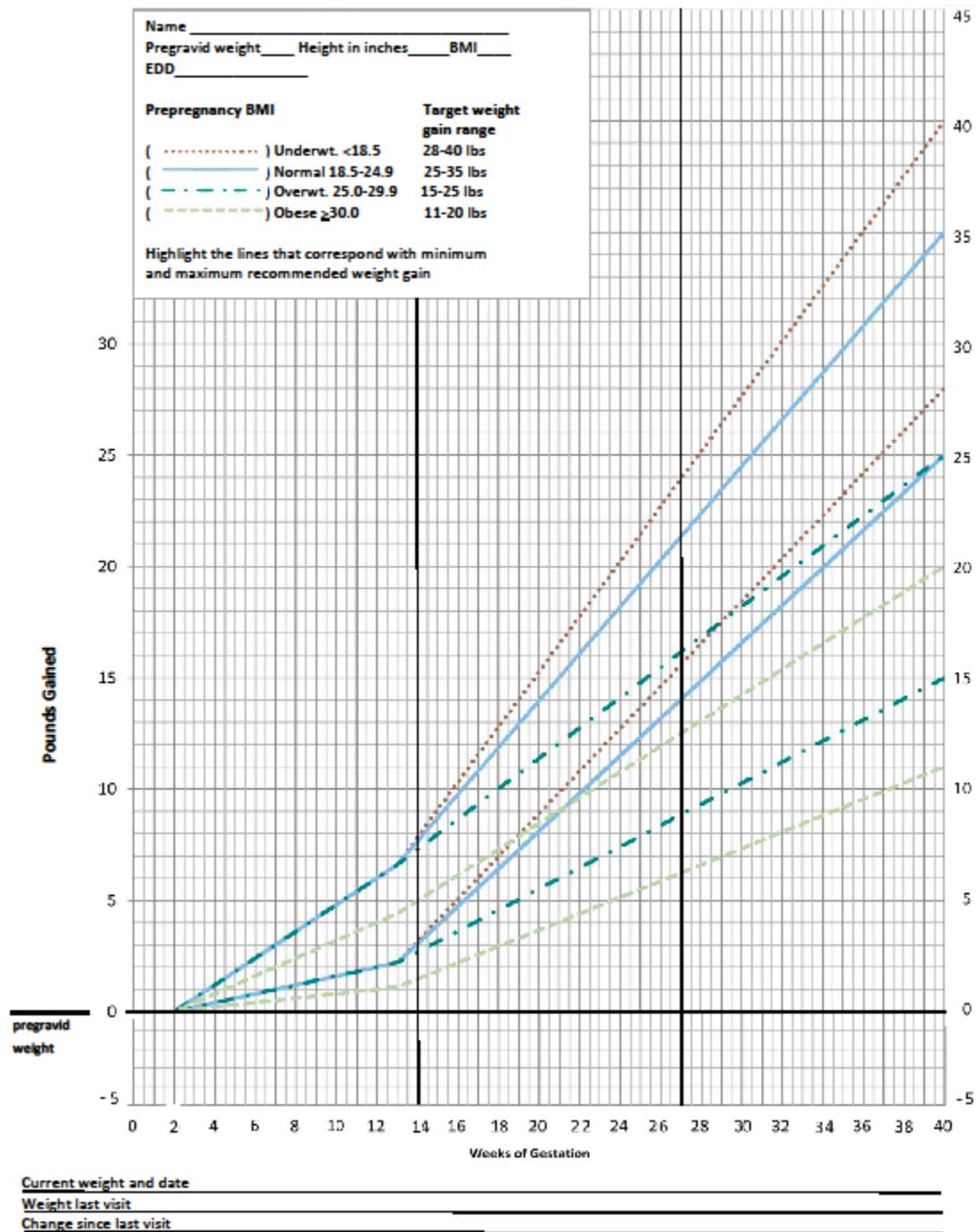
No, the hematocrit cannot be used because it was taken before the woman was pregnant.

**#9 Practice!**

1. Hand washing
2.
  - A. Airborne
  - B. Direct Contact
  - C. Fecal-oral Route
  - D. Blood Contact
3. False. It must be a biohazard sharps container.
4. True.
5. **NEVER**
6. Wash the puncture site with lots of soapy water and notify your supervisor **immediately**

# Appendix A

PRENATAL WEIGHT GAIN CHART



WIC # 124 (revised 09/10)

## Appendix B

- Hematocrit Levels Indicating Risk
- Hemoglobin Levels Indicating Risk
- Standards for Severely Low Anemia (hematocrit)
- Standards for Severely Low Anemia (hemoglobin)

HEMATOCRIT LEVELS INDICATING NRF# 201 - LOW HEMATOCRIT (Adjusted for Altitude)<sup>1</sup>

<u>Hematocrit %</u>	<u>Altitude (feet)</u>					
	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
<u>Age</u>						
<u>Both Sexes</u>						
0-6 mos.			No standard			
6-23 mos.	<34%	<35%	<36%	<37%	<38%	<39%
2-4 yrs.	<34%	<35%	<36%	<37%	<38%	<39%
5-11 yrs.	<35%	<36%	<38%	<39%	<40%	<41%
<u>Female</u>						
12+	<37%	<38%	<39%	<40%	<41%	<42%
<u>Pregnancy</u>						
1st Trimester	<34%	<35%	<36%	<37%	<38%	<39%
2nd Trimester	<33%	<34%	<35%	<36%	<37%	<38%
3rd Trimester	<34%	<35%	<36%	<37%	<38%	<39%
<u>At risk for LBW any trimester</u>	<31%	<32%	<33%	<34%	<35%	<36%
<u>Adjustments for pregnant smokers<sup>2</sup></u>						
1st Trimester						
1/2 – 1 pk/day	<35%	<36%	<37%	<38%	<39%	<40%
1 – 2 pk/day	<35%	<36%	<38%	<39%	<40%	<41%
>2 pk/day	<36%	<37%	<38%	<39%	<40%	<41%
2nd Trimester						
1/2 – 1 pk/day	<34%	<35%	<36%	<37%	<38%	<39%
1 – 2 pk/day	<34%	<35%	<37%	<38%	<39%	<40%
>2 pk/day	<35%	<36%	<37%	<38%	<39%	<40%
3rd Trimester						
1/2 – 1 pk/day	<35%	<36%	<37%	<38%	<39%	<40%
1 – 2 pk/day	<35%	<36%	<38%	<39%	<40%	<41%
>2 pk/day	<36%	<37%	<38%	<39%	<40%	<41%
<u>At risk for LBW any trimester</u>						
1/2 – 1 pk/day	<32%	<33%	<34%	<35%	<36%	<37%
1 – 2 pk/day	<32%	<33%	<35%	<36%	<37%	<38%
>2 pk/day	<34%	<34%	<35%	<36%	<37%	<38%
<u>Adjustments for non-pregnant smoking women<sup>2</sup></u>						
1/2 – 1 pk/day	<38%	<39%	<40%	<41%	<42%	<43%
1 – 2 pk/day	<38%	<39%	<41%	<42%	<43%	<44%
>2 pk/day	<39%	<40%	<41%	<42%	<43%	<44%

<sup>1</sup> Adapted from: MMWR, Centers for Disease Control, April 3, 1998, Vol. 47, No. RR-3, “CDC Criteria for Anemia in Children and Childbearing Age Women.”

<sup>2</sup> No adjustment is made for the person smoking less than 1/2 pack/day. In determining anemia cutoffs, a smoker is someone who smokes 1/2 pack of cigarettes or more per day.

HEMOGLOBIN LEVELS INDICATING NRF# 201 - LOW HEMOGLOBIN (Adjusted for Altitude)<sup>1</sup>

<u>Hemoglobin gm/dl</u>	<u>Altitude (feet)</u>					
	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
<u>Age</u>						
<u>Both Sexes</u>						
0-6 mos.	No standard					
6-23 mos.	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
2-4 yrs.	<11.3	<11.6	<12.1	<12.4	<12.7	<13.1
5-11 yrs.	<11.7	<12.0	<12.5	<12.8	<13.1	<13.5
<u>Female</u>						
12+	<12.0	<12.3	<12.8	<13.1	<13.4	<13.8
<u>Pregnancy</u>						
1st Trimester	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
2nd Trimester	<10.7	<11.0	<11.5	<11.8	<12.1	<12.5
3rd Trimester	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
<u>At risk for LBW any trimester</u>	<10.0	<10.3	<10.8	<11.1	<11.4	<11.8
<u>Adjustments for pregnant smokers<sup>2</sup></u>						
<u>1st Trimester</u>						
1/2 – 1 pk/day	<11.5	<11.8	<12.3	<12.6	<12.9	<13.3
1 – 2 pk/day	<11.7	<12.0	<12.5	<12.8	<13.1	<13.5
>2 pk/day	<11.9	<12.2	<12.7	<13.0	<13.3	<13.7
<u>2nd Trimester</u>						
1/2 – 1 pk/day	<11.0	<11.3	<11.8	<12.1	<12.4	<12.8
1 – 2 pk/day	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
>2 pk/day	<11.4	<11.7	<12.2	<12.5	<12.8	<13.2
<u>3rd Trimester</u>						
1/2 – 1 pk/day	<11.5	<11.8	<12.3	<12.6	<12.9	<13.3
1 – 2 pk/day	<11.7	<12.0	<12.5	<12.8	<13.1	<13.5
>2 pk/day	<11.9	<12.2	<12.7	<13.0	<13.3	<13.7
<u>At risk for LBW any trimester</u>						
1/2 – 1 pk/day	<10.3	<10.6	<11.1	<11.4	<11.7	<12.1
1 – 2 pk/day	<10.5	<10.8	<11.3	<11.6	<11.9	<12.3
>2 pk/day	<10.7	<11.0	<11.5	<11.8	<12.1	<12.5
<u>Adjustments for non-pregnant smoking women<sup>2</sup></u>						
1/2 – 1 pk/day	<12.5	<12.8	<13.3	<13.6	<13.9	<14.3
1 – 2 pk/day	<12.7	<13.0	<13.5	<13.8	<14.1	<14.5
>2 pk/day	<12.9	<13.2	<13.7	<14.0	<14.3	<14.7

<sup>1</sup> Adapted from: MMWR, Centers for Disease Control, April 3, 1998, Vol. 47, No. RR-3, “CDC Criteria for Anemia in Children and Childbearing Age Women.”

<sup>2</sup> No adjustment is made for the person smoking less than 1/2 pack/day. In determining anemia cutoffs, a smoker is someone who smokes 1/2 pack of cigarettes or more per day.

STANDARDS FOR SEVERELY LOW HEMATOCRIT  
NRF# 201b HIGH RISK CONDITION

(Hematocrit low enough to necessitate a medical referral)

	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
<b>Pregnant (any trimester)</b>						
Non-Smoker	<31%	<32%	<33%	<34%	<35%	<36%
<b>Smoker</b>						
1/2 – 1 pk/day	<32%	<33%	<34%	<35%	<36%	<37%
1 – 2 pk/day	<32%	<33%	<35%	<36%	<37%	<38%
>2 pk/day	<34%	<34%	<35%	<36%	<37%	<38%
<b>Non-Pregnant</b>						
Non-Smoker	<32%	<33%	<34%	<35%	<36%	<37%
<b>Smoker</b>						
1/2 – 1 pk/day	<33%	<34%	<35%	<36%	<37%	<38%
1 – 2 pk/day	<33%	<34%	<36%	<37%	<38%	<39%
>2 pk/day	<34%	<35%	<36%	<37%	<38%	<39%
6 – 23 months	<29%	<30%	<31%	<32%	<33%	<34%
2 – 5 years	<29%	<30%	<31%	<32%	<33%	<34%

STANDARDS FOR SEVERLY LOW HEMOGLOBIN  
NRF# 201b - HIGH RISK CONDITION

(Hemoglobin low enough to necessitate a medical referral)

	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
<b>Pregnant (any trimester)</b>						
Non-Smoker	<10.0	<10.3	<10.8	<11.1	<11.4	<11.8
<b>Smoker</b>						
1/2 – 1 pk/day	<10.3	<10.6	<11.1	<11.4	<11.7	<12.1
1 – 2 pk/day	<10.5	<10.8	<11.3	<11.6	<11.9	<12.3
>2 pk/day	<10.7	<11.0	<11.5	<11.8	<12.1	<12.5
<b>Non-Pregnant</b>						
Non-Smoker	<10.3	<10.6	<11.1	<11.4	<11.7	<12.1
<b>Smoker</b>						
1/2 – 1 pk/day	<10.8	<11.1	<11.6	<11.9	<12.2	<12.6
1 – 2 pk/day	<11.0	<11.3	<11.8	<12.1	<12.4	<12.8
>2 pk/day	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
6 – 23 months	<9.5	<9.8	<10.3	<10.6	<11.0	<11.3
2 – 5 years	<9.6	<9.9	<10.4	<10.7	<11.0	<11.4

# Appendix C

- WIC Certification Program Level I Observation Checklist

**WIC CERTIFICATION PROGRAM**  
**Level I**  
**Observation Checklist**

**DIRECTIONS:**

The supervisor (or other designated personnel) is to observe the trainee in the following encounters:

1. One hemoglobin procedure
2. Measurement procedures accurate and appropriate input into Compass:
  - An infant length and weight
  - A child ( $\geq 2$  years) height and weight
  - An adult height and weight
3. Proper determination of proof of identification, residence and income
4. Issuance of food instruments
5. Appropriate scheduling
6. An initial explanation of the WIC Program to a new participant

The supervisor should monitor the trainee against the established criteria, as specified in the Observation Checklist. Place a check ( $\checkmark$ ) in the "PASS" column if criteria are met satisfactorily. Check the "FAIL" column if criteria are only partially met-or not at all. Place pertinent notations in the "COMMENTS" section.

SCORING: Add up the total number of questions applicable for this particular trainee. This is the total number of points possible. Then, subtract the number of "FAILS" received to find the adjusted score. Now divide the adjusted score by the total number of points possible and multiply by 100. This is the score in percentages. Total possible points for this checklist are 75 points.

EXAMPLE: 
$$\frac{\text{Adjusted Score}}{\text{Total Points}} \times 100 = \text{ \_\_\_\_\_\_ } \%$$

The trainee must score 90 percent or better for a passing grade. The supervisor will review the completed Observation Checklist with the trainee. However, the completed Observation Checklist will remain in the supervisor's possession.

Name of Student \_\_\_\_\_

Score \_\_\_\_\_

Supervisor's Signature \_\_\_\_\_

Date \_\_\_\_\_

## Colorado WIC Certification Program Level I – Observation

Clinic Activity	Pass	Fail	N/A	Comments
<b>A. Rapport Established</b>				
1. Introduces self & observer.				
2. Directs friendly comments toward participant.				
3. Provides an overview of expectations for appointment.				
4. Explains reason for thorough nutrition assessment and benefit of WIC/participant partnership to achieve positive health outcomes.				
5. If certification appointment, explains purpose and function of WIC.				
<b>B. Work Space and Environment</b>				
1. Warm and friendly				
2. Confidential and safe				
3. Safe and clean				
4. Promotes health and nutrition				
5. Free of formula advertisement				

**(Possible 10 points) Total: \_\_\_\_\_**

	Pass	Fail	N/A	Comments
<b>C. Measurement of Infant's Length and Weight</b>				
1. <i>Observe procedure for accurately measuring an infant's length:</i>				
a. Clothing removed that could interfere with measurement				
b. One person holds the infant's head firmly against the headboard with eyes pointing directly at ceiling.				
c. Infant is fully extended and knees are prevented from flexing.				
d. Movable footboard rests firmly against both heels of infant.				
e. Length is read correctly.				
2. <i>Observe correct procedure for accurately measuring an infant's weight:</i>				
a. Scale balanced at zero with protective sheet.				
b. Infant is nude or in dry diaper only.				
c. Infant is placed in center of scale.				
d. Weight is read correctly.				
e. Weights are returned to zero position.				
f. Infant is protected from accidents throughout the procedure.				

(Possible 11 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>D. Measurement of Child (<math>\geq 2</math> years) Height and Weight</b>				
1. <i>Observe correct height measurement for a child (<math>\geq 2</math> years):</i>				
a. Hats and shoes are removed. Clothing does not interfere with measurement.				
b. Participant stands tall with shoulder blades, buttocks, and heels touching the wall. Arms at sides, knees together, feet flat on surface.				
c. Height is correctly read where the bottom of the headboard touches the measuring device.				
2. <i>Observe correct weight measurement of a child (<math>\geq 2</math> years):</i>				
a. Adult scale is balanced at zero.				
b. Light clothing is worn by child; shoes are removed.				
c. Participant stands in center of platform, body upright, arms hanging naturally at sides, looking forward.				
d. Weight is correctly read from the fractional and main weights.				
e. Weights are returned to the zero position.				

(Possible 8 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>E. Measurement of an Adult</b> <i>1. Observe correct height measurement for an adult:</i>				
a. Hats and shoes are removed. Clothing does not interfere with measurement.				
b. Participant stands tall with shoulder blades, buttocks, and heels touching the wall. Arms at sides, knees together, feet flat on surface.				
c. Height is correctly read where the bottom of the headboard touches the measuring device.				
<i>2. Observe correct weight measurement of an adult::</i>				
a. Adult scale is balanced at zero.				
b. Light clothing is worn by adult; shoes are removed.				
c. Participant stands in center of platform, body upright, arms hanging naturally at sides, looking forward.				
d. Weight is correctly read from the fractional and main weights.				
e. Weights are returned to the zero position.				

(Possible 8 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>F. Blood Specimen Collection</b>				
<i>1. Observe correct procedure for blood specimen collection and recording:</i>				
a. Staff wears clean gloves.				
b. Participant is sitting comfortably; hand is warm and relaxed.				
c. Finger cleansed with alcohol – allowed to dry.				
d. Quick, firm puncture at side of one of two middle fingers (a finger without a ring).				
e. Lancet disposed of promptly and correctly.				
f. First 2-3 drops of blood wiped away using lint-free gauze (not a cotton ball).				
g. Finger not squeezed or milked to increase blood flow.				
h. Cuvette pressed to middle of blood drop, touching the skin.				
i. Cuvette filled in one continuous motion.				
j. Excess blood wiped from sides of cuvette.				
k. Cuvette gently slid into analyzer (immediately or within 10 minutes of collection).				
l. Band-Aid applied or participant instructed to apply slight pressure to wound with clean cotton ball or gauze.				
m. Hemoglobin value read and recorded correctly.				
n. Cuvette disposed of correctly.				
o. Appropriate hand washing technique used after blood collection.				

(Possible 15 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>G. Documentation of Measurements</b>				
<i>1. Observe correct procedures for recording infant's weight and length:</i>				
a. Measurements entered correctly into Compass.				
b. Inadequate or Potentially Inadequate growth accurately assessed and assigned in Compass				
c. The staff provided an adequate explanation of the growth chart.				
<i>2. Observe correct procedures for recording child's (<math>\geq 2</math> years) weight and height:</i>				
a. Measurements entered correctly into Compass.				
b. Inadequate or Potentially Inadequate Growth accurately assessed and assigned in Compass.				
c. The staff provided an adequate explanation of the growth chart.				
<i>3. Observe correct procedures for recording prenatal weight and weight gain:</i>				
a. Pre-pregnancy weight recorded on initial visit.				
b. Weight measurement recorded at each prenatal visit.				
c. Inaccurate reason selected is applicable.				
d. If the pre-pregnancy weight was unknown, correct procedures were followed.				
e. The staff provided an adequate explanation of their recommended prenatal weight gain.				

(Possible 11 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>H. Explanation of WIC</b> (Topic for recertification identified by *.)  a. An “Initial Explanation to the WIC Program” is provided to new participants and reviewed with existing participants.				
b. WIC food benefits are prescribed for the individual, to promote and support the nutritional well being of the participant.				
c. The foods provided by WIC are supplemental.				
d. How to use the WIC check including alternate endorser, proxy and alternate shopper explanation.				
*e. Endorser is given the Rights and Responsibilities to read.				
*f. Endorser signs the signature pad indicating that they agree to the Rights and Responsibilities and are notified of the Certification End Date for each participant being certified/recertified.				

(Possible 6 points) Total: \_\_\_\_\_

	Pass	Fail	N/A	Comments
<b>I. Participant Visit</b>				
<i>1. Demographics:</i>				
a. Verifies/Updates demographic information.				
b. Proper determination and entry of eligibility proofs.				
<i>2. Food Instruments:</i>				
a. Assigns/tailors appropriate food package to meet the participant's needs.				
b. Provides explanation of dates of checks.				
a. Issues the correct number of checks.				
a. 1 month for walk-in				
b. Appropriate number of checks issued depending up on High Risk Protocol appointment for high risk participants who need to see RD/RN.				
<i>3. Scheduling</i>				
a. Gives participant an appropriate return appointment according to the type of appointment needed.				

(Possible 6 points) Total: \_\_\_\_\_