LEVEL 1

WIC Certification Program

Screening Module

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IOWA WIC

STATE OF IOWA DEPARTMENT OF
Health AND Human
SERVICES

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Section I: How to Use This Module

The Screening Module covers best practices and current recommendations on how to accurately interpret, weigh and measure babies, children and women, as well as perform hemoglobin tests for anemia (low iron). This module contains required training activities that must be completed in order to successfully complete the Screening Module that can be found on the Prepare Iowa Website in the course catalog. The training activities include:

Online Courses to Complete:

- ❒ Hemoglobin Screening: Data Collection, Assessment and Implications
- ❒ Accurately Weighing and Measuring Infant, Children, and Adolescents
- ❒ CDC BMI-for-Age Growth Chart Training
- ❒ WHO Growth Chart Training

Additional Activities:

- ❒ Review Blood Tests policy and Measuring Hemoglobin with Hemocue and Measuring Hemoglobin with Pronto procedures for clarification on testing procedures.
- ❒ Review Anthropometric Measurements policy.
- ❒ Review the Risks and Critical Thinking Guides located on the Portal.
- ❒ Complete Screening Module online post-test.

Section II: Introduction

When certifying/recertifying a WIC participant, it is necessary to collect certain information for screening purposes. Included in this information is height/length, weight and in most cases hemoglobin levels depending on the blood work screening schedule. 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 health updates in the WIC Program. This information is also used to assess a participant's health, plan education and intervention, and monitor change. Additional screening functions include immunizations and blood lead level for infants and children.

Height/Length 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, waist circumference, skin fold, and other measurements. In WIC we are mostly concerned with weight, recumbent length, and standing height. These terms will be discussed in this module. This module will also discuss how to understand height, weight, and length information on the proper growth and weight 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 with their back against the wall, looking straight forward. 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 babies and children younger than two years of age, children less than 31 ½ inches 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.

In WIC, we perform a hemoglobin test to determine how much iron a participant has in their blood. Iron deficiency anemia is a common problem for pregnant women and growing children. The amount of iron in a person's blood is a sign of whether there is enough iron in their body. Two types of tests are used to determine anemia called a hemoglobin test and a hematocrit test. Local WIC agencies perform a hemoglobin test by using either a HemoCue machine or a non-invasive test using a Pronto.

It is important that all anthropometric measurements used in screening WIC participants be performed using a standard procedure, which is explained in detail in the Anthropometric Measurements policy. 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 CPA weighs a pregnant woman with shoes and coat and at the next visit another CPA weighs the woman without shoes and coat, it would be incorrect to compare the measurements. A woman may be gaining or losing weight and we would not be able to tell.

Information gathered about weight and height is 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. The growth charts for children were developed using the weights of children wearing light clothing and no shoes.

Here is an example to show why standard procedures are important:

A baby is weighed at a WIC certification visit. You ask the mom to undress the baby to weigh the baby nude. Compared to a previous weight at the WIC clinic the baby does not appear to be growing well. The baby should have gained more weight between the two visits. Because of the concerns expressed at WIC, the mom takes the baby to the pediatrician for a checkup later that afternoon. The nurse at the pediatrician's office weighs the baby, but this time the baby is weighed wearing a wet diaper and a couple of layers of clothing. The baby's mom is surprised to learn that her baby has gained almost a half a pound in the two hours since her WIC visit. The nurse tells the mom that her baby is gaining weight adequately compared to the previous WIC weight. For a baby 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 mom would be confused. WIC says there is concern about her baby's weight while the doctor's office says there is no concern. Comparing the baby's weight to the standard growth charts, using WIC's weight the baby'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 baby's growth. If the weight from the physician's office was used for assessment, then the baby would continue with poor growth. This could have long-lasting consequences for the baby's growth and development.

It is very important that all anthropometric and hemoglobin 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 understand the weights, heights, and lengths of infants and children on standard growth charts to evaluate their growth. You will learn to understand the weight gain of a pregnant woman to determine if she is gaining weight appropriately. You will learn to compare hemoglobin values against charts to determine if a blood value for a baby, child, or woman is within a normal range.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

1. Give two examples of an anthropometric measurement:

   1._____
   2._____

2. To measure the length of a child over 2 years of age it is important to have the child stand upright with their back against the wall, looking straight forward.

   A. True B. False

3. Height means the same thing as length. Height and length can be used interchangeably when measuring a child.

   A. True B. False

4. Why is it important to always use the correct standard procedure when weighing or measuring a WIC participant? Give two reasons.

   1._____
   2._____

ANSWERS

1. Anthropometric measurements: height, weight, length

2. A. True. 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 correctly to another.
   - Measurements can be correctly compared against standards such as growth charts.

Section III: Anthropometry

TRAINING ACTIVITY

- ❒ **Online Training :**
  - Accurately Weighing and Measuring Infant, Children, and Adolescents

Remember that anthropometry is the measurement of the size of the body. In WIC, we measure stature (length and height) and weight. Standard procedures for performing these measurements are included in the next few pages.

Measuring Stature

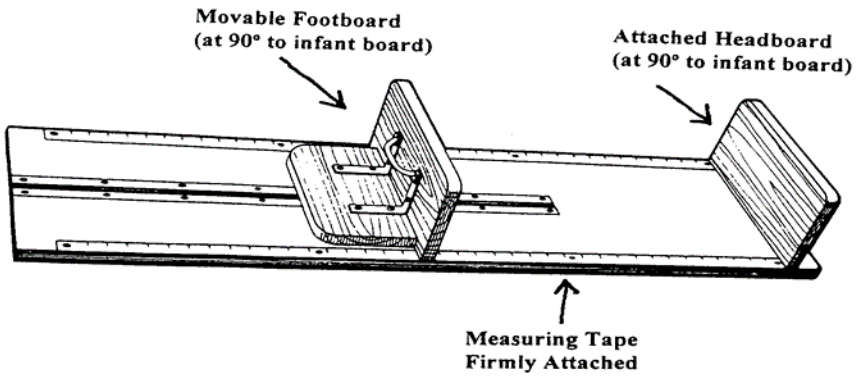
Length

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** the same or 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.

Babies and children up to the age of two years or less than 31 ½ inches tall should have their length measured. Height is used for children two years of age and older. The Focus 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 Focus system assumes the value is a height. A length measurement cannot be entered for a child over 24 months of age or older. If a length is measured for a child 24 months of age or older lying down, enter the measurement and select "Recumbent > age 2" as the inaccurate reason. The plot on the grid will be in red showing an incorrect measurement.

Equipment

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

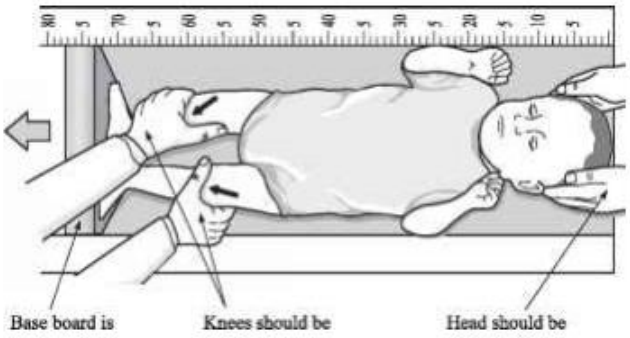


Procedure: Follow these steps to accurately measure recumbent length.

1. Remove the child's shoes, hat, coat and any heavy or bulky clothing, hair ornaments and braids on top of the head.
2. Lay the child on a length board covered with thin paper, with the child's head against the headboard.
3. Have an assistant, such as the child's mother; use both hands to hold the child's head against the headboard with the child's eyes focused straight up.
4. Extend the child's legs so that both soles are positioned flat against the board.
5. Hold feet with one hand and straighten both knees with the other.
6. Recheck positioning.
7. Slide the footboard firmly towards the feet. The soles must rest flat against the footboard.
8. Read and record the measurements to the nearest 1/8-inch.

Length measurements will be automatically plotted on the appropriate growth chart in Focus.

Note: One way to get babies to flex their toes when measuring length is to use the non-ink end of a 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.



Height

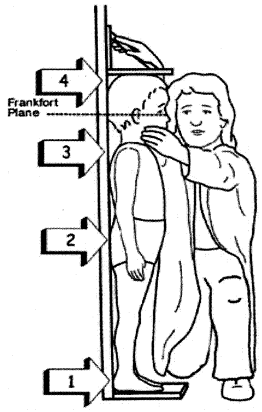
Height is a measure of how tall a person is while they are standing upright. In the WIC Program, height is measured on participants who are at least 2 years of age and over 31 ½ inches tall.

Equipment

A wall-mounted or portable measuring device, such as a stadiometer, that is designed for the purpose of taking standing heights 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 a correct measurement. If you cannot use a stadiometer measuring tape that can read in at least 1/8 inch increments can be used.

Note: Do not use the height-measuring device on a balance beam scale. The head piece is rarely attached at a 90-degree angle.

Procedure: Follow these steps to accurately measure recumbent length.



1. Ask participant to remove shoes, hat, coat, and other bulky clothing, hair ornaments or braids on top of head.
2. Ask participant to stand erect with feet parallel and heels together. Note: The participant's heels, buttocks, and shoulders should touch the wall or measuring surface, and eyes focused straight ahead.
3. Slide the broca plane down to rest on the head, compressing the hair.
4. Read and record the measurement to the nearest 1/8-inch. Note: If necessary, use a footstool to read the tape at eye level.
5. The measurement is recorded in the Anthropometric section of the Focus 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 Focus. Possible reasons for incorrect measurements include uncooperative, equipment malfunction, along with other choices.

All WIC clinics must be equipped with measuring devices for height.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

1. Until what age should a child's length be measured instead of height?

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 <u>alone</u> to obtain an accurate length measurement of a baby.

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

5. The height of a participant can be measured with shoes on as long as the clinic is consistent and always measure the participant the same way.

A. True B. False

6. When measuring a person's height only their buttocks and heels to be touching the wall.

A. True B. False

ANSWERS

1. D
2. B
3. A
4. B
5. B
6. B

Measuring Weight

Weight measurements are required on all WIC participants at certification and recertification visits, and at least one health update visit annually. They are recommended at follow-up visits when there is concern about growth or weight gain.

Infants are weighed on an infant scale while either lying down or sitting on the scale. Children and women are weighed on an adult scale while standing upright.

Infant Weight

This procedure should be used with infants. Children are weighed on an adult scale.

Equipment

An infant balance beam, scale or infant cradle for use with an adult scale are the recommended form of infant scales. The scale should be marked in increments of 1 ounce. The scale must have a zeroing adjustment. The scale must rest on a firm, stable surface. 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.

Procedure: Follow these steps to accurately weigh infants.

1. Line cradle with thin paper.
2. Place cradle on scale and balance scale to zero.
3. Remove the infant's excess clothing.
4. Place the infant in cradle.
5. Read and record weight to the nearest ounce.
6. Lock scale until next use.
7. The measurement is entered into the Anthropometrics panel of the Focus system.
8. The information will be plotted automatically onto the appropriate growth grid in the Focus system.

A baby or small child must be protected at all times to make sure they are not injured or do not fall during measurement of their weight or length.

Children and Adult Weight

Equipment

A beam balance scale with a platform and non-detachable free-sliding weights or a digital scale is recommended. The scale should be marked in increments of not less than one-eight (1/8) pound. It must have a zeroing adjustment. Beam balance scales as well as digital scales are used in Iowa WIC clinics. The scale must rest on a firm, flat, 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.

DO NOT USE

Technique Procedure: Follow these steps to accurately weigh children and adults

1. Balance the scale at zero.
2. Ask the participant to remove shoes and excess clothing, and check pockets for heavy objects such as keys. The participant's hands must be empty.
3. Ask the participant to step on the center of the scale platform with arms hanging at sides.
4. Read and record weight to the nearest ounce
5. Lock scale until next use.
6. The weight measurement is recorded in the Anthropometrics panel in Focus.
7. For a beam balance scale return the weights to the zero position on the left-hand side of the scale.
8. Record the information in the Focus system.

Note: 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.

Participants who are unable to stand or are too large to be weighed

When participants are unable to stand due to physical impairment, explore other ways of weighing.

- Children's weights may be obtained in their parent's 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. If your scale has a tare capability, you can weigh the child's caregiver and tare out their weight before weighing them again holding the child. The reason for the possible inaccuracy in weighing must be documented in the Anthropometrics panel in Focus. Then choose "uncooperative" from the drop down list.

- 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 doctor's office where the adult receives health care. Ask the participant to bring weight measurements with them to their WIC appointments. Weights obtained outside the WIC clinic are okay up to 30 days from the appointment date. Again, documentation should be made in the care plan as to where or how the weight was obtained.

If a participant's weight is too high to be measured on the WIC scale, ask if the participant is being weighed at their doctor's office. If the answer is yes, ask them to bring their weight to the WIC appointment. It is important to respect the honesty of the participant under these situations. If weight is unavailable, it may be necessary to forego obtaining a participant's weight. Participants in this situation should be seen by a Licensed Dietitian for assessment and follow up. Documentation should be placed in the participant care plan explaining why a weight was not obtained.

Do not get discouraged if at first you find it difficult to obtain lengths, heights, or weights. Some of these measurements can be difficult under good conditions, but even more difficult when you are new and when the child or baby is angry or upset. With time and practice, you will become skilled and the measurements will become routine and easy to do. Learn to do 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.

Your supervisor will observe you performing heights, lengths, and weight measurements using the Observation Checklist. This checklist is part of Level I and usually completed once all Level I modules and online Focus Training is completed. The checklist is found on the Iowa WIC webpage.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

1. Babies need to be weighed without clothes and a diaper.

   A. True B. False

2. Bathroom scales are just as accurate as beam balance scales.

   A. True B. False

3. An Infant's weight should be measured to the nearest:
   A. Pound
   B. Ounce
   c. Half pound

4. Objects that weigh approximately 10 pounds can be used to calibrate the accuracy of a scale.

   A. True B. False

5. Scales should be returned to the zero position after each measurement.

   A. True B. False

6. An acceptable way to weigh a scared baby or child is in their mother's arms, then weigh the mother alone and subtract the weight.

   A. True B. False

7. How would you document the weight if it is obtained with the above method (in questions #6)?

ANSWERS

1. B
2. B
3. B
4. B
5. A
6. A
7. Document the inaccurate reason as "Uncooperative" in the Assessment portion of Focus

General Information Regarding Stature 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. Weight measurements are required on all WIC participants at certification and recertification visits, and at one health update visit annually. They are recommended at follow-up visits when there is concern about growth or weight gain.

Length and Weight Measurements for Infants

Required
- Certification Visit
- Health Update Visit (once during the certification period)

Stature and Weight Measurements for Chil**dren**

Required
- Certification/Recertification Visits

- Health Update Visit

Measurements Brought to the Clinic

Parents or caregivers may bring stature and weight measurements from a medical provider's office or similar source. These measurements may be used for certification/recertification or health update visit. The measurements, however, may not be more than 30 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 entered into the measurement date field on the Anthropometric panel in Focus.

When a parent or caregiver brings stature and weight measurements from a medical provider's office, it may still be necessary to get current measurements in the WIC clinic. This is especially true for babies and for measurements that are more than a few days old. While policy allows measurements to be 30 days old, measurements that are more than a few days or weeks old may not give a good assessment of the current health of a baby or child. Additionally, birth weight and length cannot be used to certify infants. Stature and weight measurements brought into the WIC clinic must be from a reliable source. Measurements need to be performed by a health care professional using standard measuring procedures as outlined in this module and the Anthropometric Measurements policy . Measurements must also be correctly communicated with the WIC clinic. Verbal reports from parents or caregivers are not allowed. Measurements must be written on prescription pads or official paperwork from the health care provider's office. Your local agency may choose to use Nutrition Health History Cards to facilitate the sharing of health data between a participant's health care provider and your agency to reduce duplication of services. The Nutrition Health History cards are discussed in the Anthropometric Measurements and the Blood Tests policy. .

One challenge in WIC clinics is explaining to parents or caregivers 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 correct 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 baby 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. An infant will weigh more before having a bowel movement or before emptying his/her bladder. An infant will weigh less just before they eat.

A difference 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 you are sometimes evaluated for your 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. Focus automatically carries the height measurement forward to the next anthropometric record. Growing adolescent women under age 21, however, need to have their heights measured at each recertification visit because they may continue to increase in height until their 21st birthday. It is not allowable for a woman to self-report her height or weight since self-reported measurement data can often be wrong.

As with babies and children, women may bring measurements from a health care provider as long as the measurements are not more than 30 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 and 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 quickly 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 you would miss an important opportunity to help the woman with a major nutritional problem.

Height and Weight Measurements for Women

Required
- Certification/Recertification Visits.

Data Entry

ALL height and weight data collected at any WIC visit should be entered into the Focus 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.

Occasionally a measurement obtained will be outside of a range that the Focus system recognizes. A message will pop up that says the measurement is *outside of the expected range*. This is only a warning and the measurement can be entered and saved in the system. The Focus system does have high and low limits for weight, length and height and will not allow any measurements outside this range to be entered and saved. If this occurs, check carefully to make sure your measurements are correct as the limits are set with a wide normal range for each age. Data for weight can be entered without stature and vice versa.

Common Measurement Errors

As stated earlier, it is very important to collect stature and weight data in a standardized manner. Inaccurate measurements are of little value and can result in inaccurate assessment of nutritional status. This can have serious health consequences for the participant. Some of the more common measurement errors include:

For all measurements:

- Inaccurate techniques
- Wrong equipment
- Restless or fearful child who makes measurements difficult
- Reading equipment incorrectly
- Recording information incorrectly
- Errors with measurement conversions

For length:

- Incorrect instrument for age
- Footwear or hair decorations not removed
- Head not held straight above body
- Head not firmly against fixed end of board
- Child not straight along board
- Body arched
- Knees bent
- Feet not parallel to movable board (toes not pointing toward ceiling)
- Board not firmly against heels
- Only one leg used for measurement

For height:

- Incorrect instrument for age
- Footwear or hair decorations not removed
- Feet not straight or flat on floor
- Feet not back against tape measure
- Knees bent
- Body arched or buttocks forward (body not straight)
- Shoulders not straight or touching tape measure
- Head not straight above body and eyes looking forward
- Headboard not firmly on crown of head
- Headboard does not form right angle with wall (for non-attached headboards)
- Inappropriate headboard used (for non-attached head boards)

For weight:

- Scale not adjusted to zero before weighing

- Infant weighed with bulky clothing
- Child or woman weighed with heavy clothing and/or shoes
- Infant or child moving
- Child or woman holding toys, bottle, or holding onto scale
- Parent holding child to steady them on scale
- Clothing or other objects placed under scale that affects its movement

When height, length, or weight values appear too unusual, remeasure the woman, infant or child to ensure accuracy. 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 health care provider, it is better to recheck the measurement to be sure it is correct.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

1. All measurements taken on participants in the WIC clinic should be entered into the Focus system including stature or weight measurements taken after the certification visit.

   A. True B. False

2. Babies should be weighed in light clothing with their shoes and coats removed.

   A. True B. False

3. A pregnant woman may self-report her height when being certified on the WIC Program.

   A. True B. False

4. It is recommended that pregnant women be weighed at each WIC visit.

   A. True B. False

5. If height and weight information from a health care provider is used to certify a participant on the WIC Program, how current does it need to be?

   _____

6. Weights are needed at health update visits performed for infants.

   A. True B. False

7. List two reasons why a baby's weight at the doctor's office two hours ago may be different than their weight right now in the WIC clinic:

1.

2.

ANSWERS

1. A

2. A

3. B

4. B

5. Less than 30 days old

6. A

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

TRAINING ACTIVITY

❒ **Online Training :**
   - CDC BMI-for-Age Growth Chart Training

Before proceeding make sure you have taken the course on the prepare Iowa website.

What Are Growth Charts?

Growth charts are designed to represent the normal growth of healthy children. For babies and children ages 0-24 months of age, the WIC Program uses the World Health Organization (WHO) standard growth charts. All measurements taken while the baby or child was less than 24 months of age will be plotted on these charts. The WHO growth charts are based on healthy, breastfed babies and young children from diverse ethnic backgrounds and cultural settings. For children 24 months of age and older, the WIC Program uses charts developed by the National Center for Health Statistics for the Centers for Disease Control and Prevention (CDC). These charts were developed from studies on normal, healthy children in the United States. Both types of growth charts have separate charts for boys and girls. The boys' and girls' charts are divided into those for infants and children 0-24 months of age and those for children 2-5 years of age.

The Iowa WIC Program uses the following individual growth charts for growth assessment: length for age, weight for age, weight for length, stature for age, and BMI for age.

The WHO growth charts contain percentile curves showing growth percentiles of 2, 5, 10, 25, 50, 75, 90, 98. The CDC growth charts contain percentile curves showing growth percentiles of 5, 10, 25, 50, 75, 90, and 95. Each percentile serves as a reference for comparison. For example, a girl, age 3, 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 over 24 months whose height is between the 10th and 90th percentile is considered to be in the "normal range."

Recording Measurements

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 charts are an important tool for assessing a child's nutritional status since nutrition plays a major role in growth. Poor growth can point to poor nutrition (though poor growth can also result from other factors such as illness). The information must always be entered into the Focus system. For the growth charts to correctly reflect the percentiles calculated by Focus, the following must occur:

0-24 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. Focus charts display age in increments of three months beginning with birth. Weight is displayed in increments of 2 pounds. Length is displayed in increments of 1 inch.

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 and BMI for Age. Focus 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 screen children 24 months of age and older and adolescents as underweight, overweight, or at risk of overweight, in order to identify children who may need further assessment and possible treatment. Expected values for children's BMIs are different than for adults. An advantage of using BMI-for-age is that it can be used continuously from age 2 years through adulthood. 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.

BMI Calculation: BMI = (Weight in Pounds / (Height in inches x Height in inches)) x 703

After height and weight have been entered and saved into Focus, BMI and BMI-for-age will be automatically calculated by the Focus 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. The current BMI is located in the upper right hand area of the Anthropometric panel.

For more information on BMI-for-age and overweight in childhood, go to:
http://www.cdc.gov/nccdphp/dnpao/growthcharts/training/bmiage/index.html

The Focus system provides two web links to special growth charts that include the CDC Growth Charts for Special Needs and Down syndrome growth charts.

What Do Growth Charts Tell Us?

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).

BMI-for-age tells us the same information for children older than 2 years.

Several measurements plotted at different age s 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 are normal. Measurements <10th and >85th may show the child is at risk for medical/nutritional problems and should be carefully

checked for accuracy; referral may be needed. 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.

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.

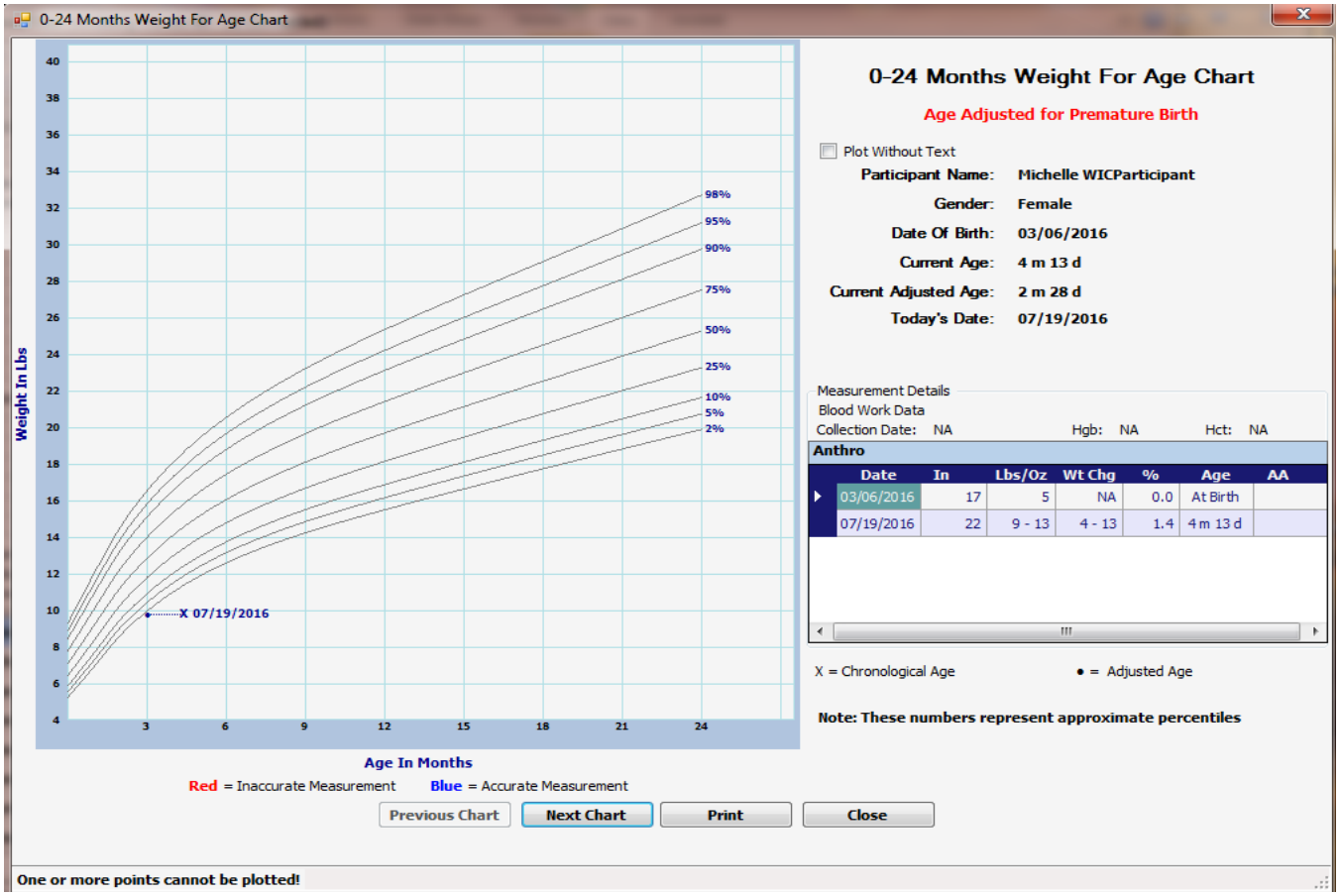
Also remember, when working with growth charts, there is a wide range of heights and weights that are normal for children since children grow at different rates. A single measurement is not helpful; in fact, is it inappropriate to label a child as too thin or overweight based on a single measurement. A series of measures is needed to determine the growth trend.

What about growth charts for premature infants?

The data system will adjust for gestational age for premature infants (defined as less than or equal to 37 weeks gestation) who have reached the equivalent age of 40 weeks gestation and children under 2 years of age who were born at less than or equal to 37 weeks gestation. The charts will be adjusted until the chronological age of 2 years. The short stature risks are assigned based on adjusted gestational age.

Case Study:

Michelle was born at 34 weeks gestation. Her chronological age today is 4 months and 13 days, so she has reached the 40 weeks equivalent. Since she was born at 34 weeks of age, a 6 week adjustment is needed (40 weeks minus 34 weeks). Her chronological age of 4 months 13 days minus 6 weeks adjustment = 3 months

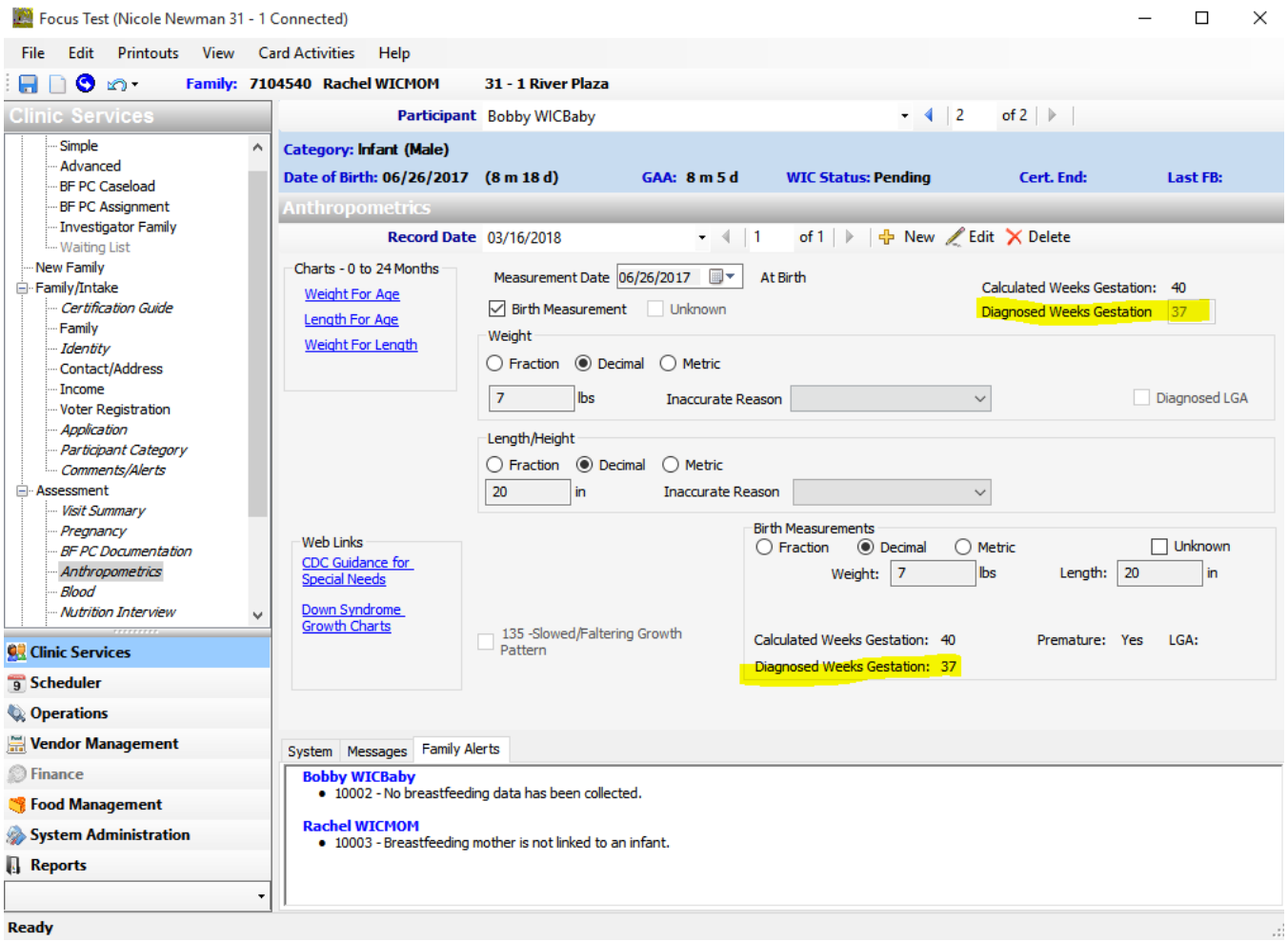


You can see that the growth chart has been adjusted to plot at the 3 month mark. You will also see in the upper right hand corner of the panel in words that the age has been adjusted for premature birth.

Although not a required field, it's important to fill out the Expected DOB (date of birth) on the Enrollment panel for the correct weeks gestation to generate on the Anthropometric panel and growth chart. When this is entered the weeks gestation in the mothers pregnancy tab will update based off the information entered for the infants expected DOB.

Another way to get Focus to assign prematurity is by using the Diagnosed Weeks Gestation box. The Diagnosed Weeks Gestation is the number of weeks the doctor diagnosed the baby . For example, they may have estimated mom's due date to be July 4th but when baby was born on June 26th even though it was only a week or so earlier than expected the baby appears to check out as preterm and the doctor tells mom they think the due date was off by a couple weeks, making baby 37 weeks diagnosed gestation.

So again, if either the Calculated weeks gestation or the diagnosed weeks gestation is less than or equal to 37 weeks then the prematurity risk will be assigned and the growth charts will be automatically adjusted in Focus.



Anthropometric Risks

101 - Underweight (Women) Low Risk
System assigned risk factor for a woman that has a Body Mass Index (BMI) <18.5.

103 Underweight or At Risk of Becoming Underweight (Infants and Children) (High Risk)
Underweight is a System assigned risk factor for birth to < 24 months with a weight-for-length > the 2.3rd percentile and a child 2-5 ≤ 5th percentile Body Mass Index. At Risk of Underweight is also system assigned for Birth to≥ 24 months of age with a weight-for-length >2.3rd percentile and ≤ 5th percentile and a child 2-5 >5th percentile and ≤ 10th percentile BMI-for-age.

111 - Overweight (Woman) (Low Risk)
System assigned risk factor for a woman that has a Body Mass Index ≥ 25.

113 – Obese (Children 2-5 Years of Age) (High Risk)
System assigned risk factor for children 2-5 years of age ≥ 95th percentile Body Mass Index (BMI) or weight for-stature as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2-20 years gender specific growth charts.

114 – Overweight or At Risk of Overweight (Infants and Children) (Low Risk)
Overweight is a system assigned risk factor children 2-5 years of age ≥85th and < 95th percentile Body Mass Index (BMI)-for-age or weight-for-stature as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2- 20 years gender specific growth charts. At Risk of Overweight is a system assigned risk factor for an infant < 12 months (infant of obese mother BMI ≥ 30 at the time of conception or at any point in the first trimester of pregnancy), child ≥12 months (child of obese mother) who's biological mother with a BMI ≥ 30 at the time of certification, and child 0-5 (infant or child of obese father) who's biological father with a BMI ≥ 30 at the time of certification.

115 – High Weight-for Length (Infants and Children < 24 Months of age) (Low Risk)
System assigned risk factor and is assigned to children Birth to < 24 months ≥ 97.7th percentile weight-for-length as plotted on the Centers for Disease Control and Prevention (CDC), Birth to 24 months gender specific growth charts..

121- Short Stature or At Risk of Short Stature (Infants and Children) (Low Risk)
Short Stature is a system assigned risk factor for an infant or a child. Children birth to < 24 months ≤ 2.3rd percentile length-for-age as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific growth charts and children 2-5 ≤ 5 th percentile stature-for-age as plotted on the 2000 CDC age/gender specific growth charts. At Risk of Short Stature is a system assigned risk factor for children birth to < 24 months > 2.3rd percentile and ≤ 5 th percentile length-for-age as plotted on the CDC Birth to 24 months gender specific growth charts and children 2 – 5 years > 5 th percentile and ≤ 10th percentile stature-for-age as plotted on the 2000 CDC age/gender specific growth charts.

131 - Low Maternal Weight Gain (High Risk)
System assigned risk factor for a singleton pregnancy for a low rate of weight gain in the 2nd and 3rd trimesters. For underweight (BMI <18.5) it assigned if weight gain is <1 lbs/week total 28 - 40lbs, Normal weight (BMI 18.5-24.9) weight gain is <0.8 lbs/week total 25-35lbs, Overweight (BMI 25.0 – 29.9) weight gain is < 0.5 lbs/week total 15-25lbs, Obese (BMI ≥ 30.0) weight gain is < 0.4 lbs/week total 11-20lbs.

133 - High Maternal Weight Gain (Low Risk)
System assigned risk factor for singleton pregnancy for a high rate of weight gain in the 2nd and 3rd trimesters. For underweight (BMI <18.5) it assigned if weight gain is >1.3 lbs/week total >40lbs, Normal weight (BMI 18.5-24.9) weight gain is >1.0 lbs/week total >35lbs, Overweight (BMI 25.0 – 29.9) weight gain is > 0.7 lbs/week total >25lbs, Obese (BMI ≥ 30.0) weight gain is > 0.6 lbs/week total >20lbs.

134 - Failure to Thrive (High Risk)
System assigned risk factor for infants whose weigh is below the 3rd percentile for age, weight less than 80% of ideal weight for height/age, Progressive fall-off in weight to below the 3rd percentile, or a decrease in expected rate of growth along the child's previously defined growth curve irrespective of its relationship to the 3rd percentile.

135 – Slowed/Faltering Growth Pattern (High Risk)
System assigned risk factor for an infant birth to 2 weeks who has excessive weight loss after birth, defined as > 7% birth weight or an infant 2 weeks to 6 months of age that has any weight loss.

141 – Low Birth Weight and Very Low Birth Weight (High Risk)
Low birth weight (LBW) is a system assigned risk factor for an infant whose birth weight defined as < 5 pounds 8 ounces (< 2500 g). Very low birth weight (VLBW) is a system assigned risk factor for an infant whose birth weight defined as < 3 pounds 5 ounces (< 1500 g).

142 – Preterm or Early Term Delivery (High Risk)
Preterm is a system assigned risk factor for an infant born ≤36 6/7 week's gestation. Early Term is a system assigned risk factor for an infant born ≥37 0/7 and ≤38 6/7 weeks gestation.

153 - Large for Gestational Age (Low Risk)
System assigned risk factor for an infant's whose birth weight ≥ 9 pounds (≥ 4000 g).

TRAINING ACTIVITY

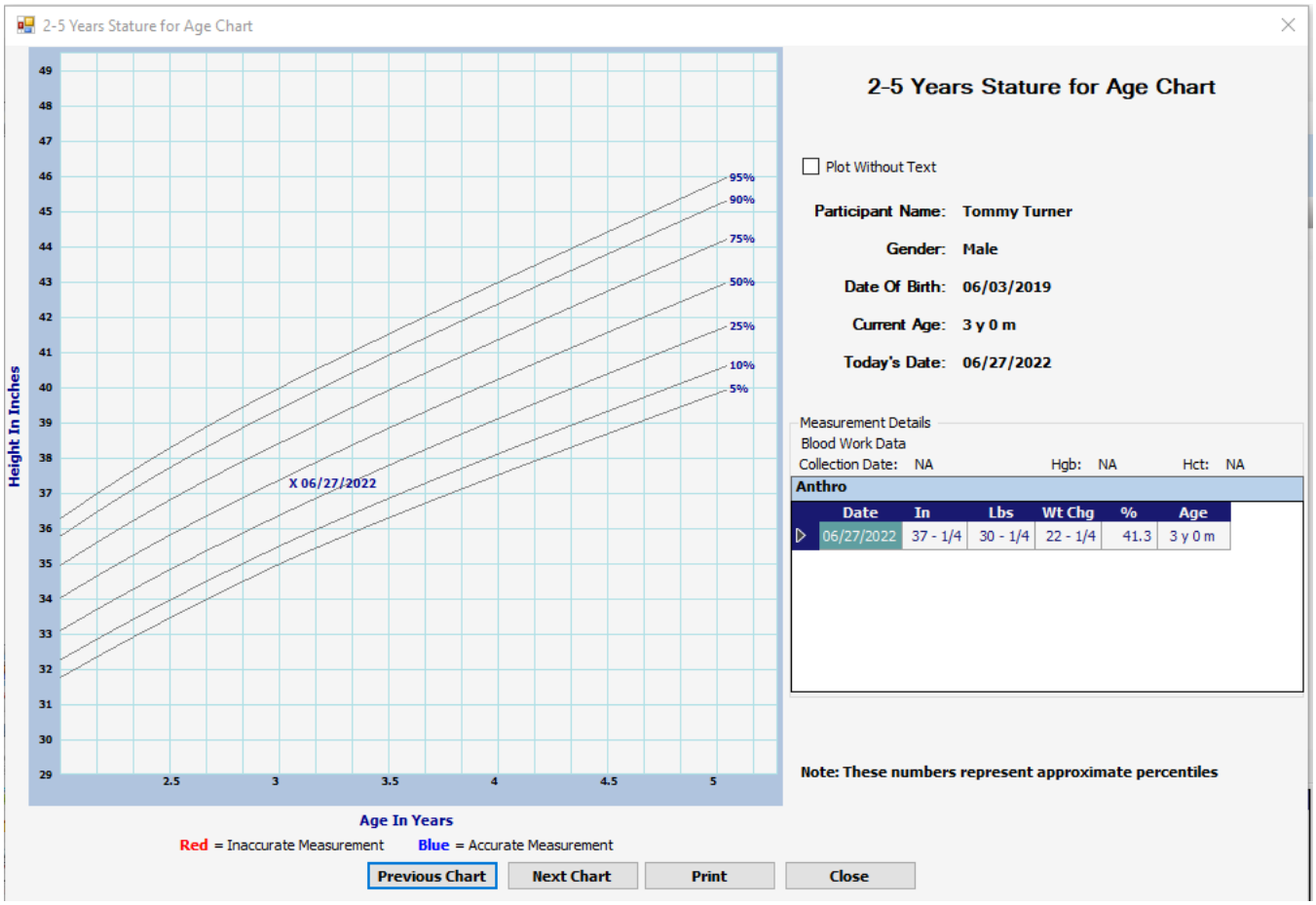
- ❒ **Online Training :**
  - WHO Growth Chart Training

Before proceeding make sure you have completed the WHO Growth Chart Training on the Prepare Iowa website.

Case Study

Tommy Turner is a 3-year-old boy being certified on the WIC Program for the very first time today. He weighs 30 ¼ pounds and is 37 ¼ inches tall. His BMI is 15.3 and today's date is June 27, 2022. Tommy's birthday is June 3, 2019.

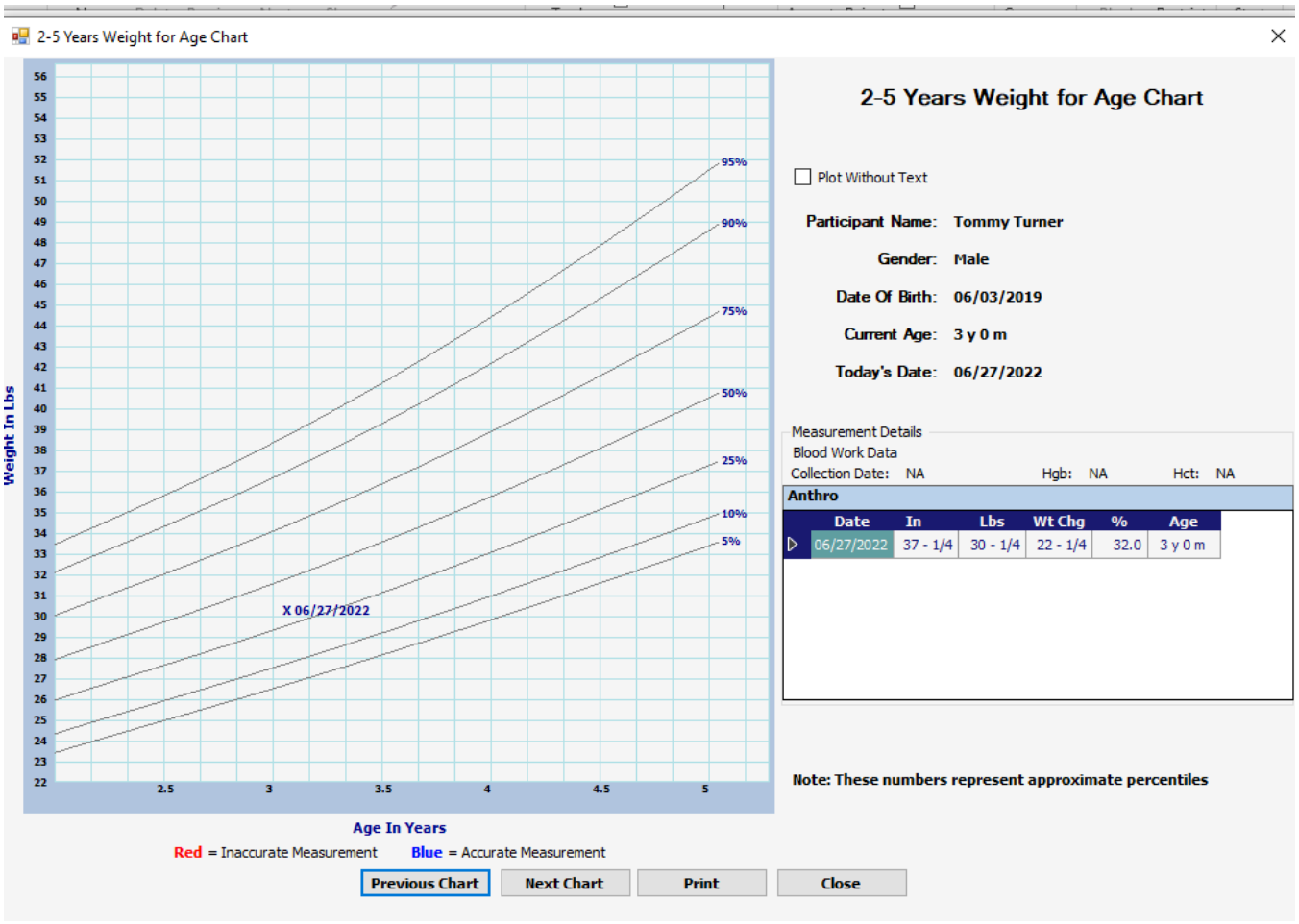
Stature for Age Chart:



Because Tommy is more than 2 years of age, the 2-5 years Charts are used in Focus.

- The title of the chart is displayed at the top of the screen.
- Participant Name, Date of Birth, Current Age and Today's Date are all displayed.
- 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 age are populated into the grid.
- The vertical and horizontal labels on the chart display the type of anthropometric measurement and the type of standard used.
- The current measurement will be displayed with an X along with the date on the growth chart.
- The growth chart % indicates at which percentile the measurement is plotted. For example, Tommy's weight for age is 32.0%, his stature for age is 41.3%, and his BMI for age is 26.5%.

Weight for Age Chart:

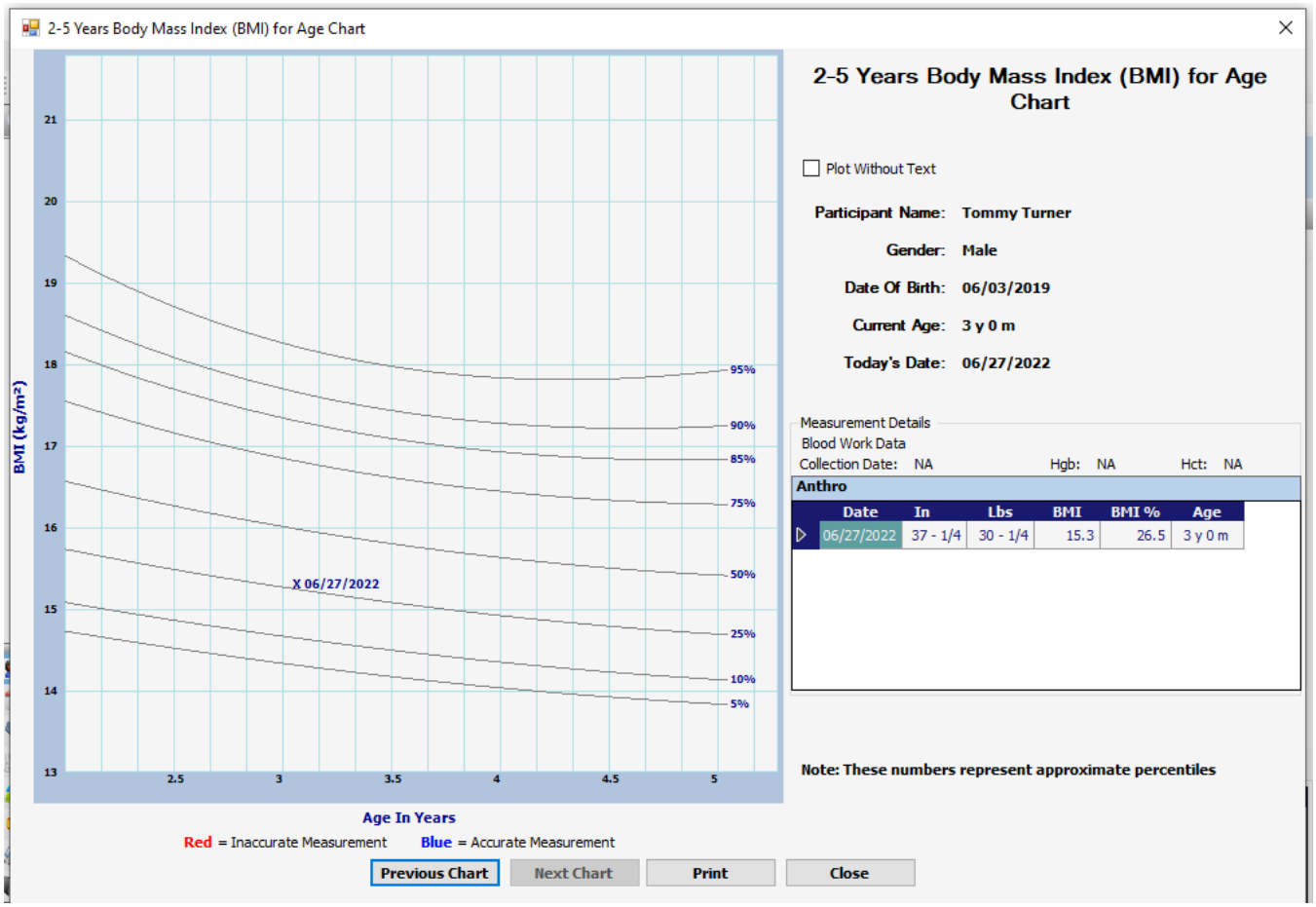


What does Tommy's growth grid tell us about his growth? The lines that cross the graphs and are labeled 5, 10, 25, 50, 75, 85, 90, & 95 are referred to as percentile or channel lines. On the stature for age grid Tommy's height falls just below the 50th percentile "channel" line around the 39th percentile. This tells us that 59% of the boys Tommy's age are taller than he is and 41% 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.

Tommy's weight for age is just above the 25th percentile channel line, at the 32 percentile. This tells us that he weighs less than about 68 percent of the children his age and more than 32% 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 26.5 percentile and is considered within the "normal" range.

BMI for Age Chart:



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. Low birth weight is currently a leading cause of infant mortality. Infant mortality refers to the death of a baby before his or her first birthday. These babies are less likely to be healthy at birth and are more likely to have serious medical complications and longer hospital stays. 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. 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 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 **pre-pregnancy BMI.**

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

Below is another resource for determining BMI if needed. The table displays the different BMI classifications: Underweight, Normal Weight, Overweight and Obese.

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 pre-pregnancy 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.

Assessment for Pregnant Women

Low Maternal Weight Gain – 131 (High Risk)

Low maternal weight gain occurs any time **during a singleton pregnancy** when weight plots below the bottom line or below the recommended weight gain range on the Prenatal Weight Gain Chart in Focus – or - when weight gain in the 2nd or 3rd trimester (14 – 40 weeks gestation) is lower than the following recommendations for her pre-pregnancy weight category.

Pre-Pregnancy Weight Classification	BMI	Total Weight Gain (lbs)/ per week
Underweight	<18.5	<1
Normal Weight	18.5 - 24.9	< 0.8
Overweight	25.0-29.9	<0.5
Obese	≥30.0	<0.4

This risk factor is high risk and auto assigned by Focus or can be manually assigned and must be recorded on the Anthropometrics or Risk panel in Focus. If the participant did not see a Registered Dietitian during the certification appointment, they will need to see one at their health update visit.

High Maternal Weight Gain – 133 (Low Risk)

High maternal weight gain occurs any time **during a singleton pregnancy** when weight plots above the top line or the recommended weight gain range on the Prenatal Weight Gain Chart.

This risk factor is low risk and auto assigned by Focus or can be manually assigned and must be recorded on the Anthropometric or Risk panel in Focus.

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:

Recommendations for Total and Rate of Weight Gain during Pregnancy

IF BMI is...	THEN inadequate gain in 2nd and 3rd trimesters is...	AND excessive gain in 2nd and 3rd trimesters is ….
<18.5	<1 pound per week	>1.3 pounds per week
18.5 to 24.9	<0.8 pounds per week	>1.0 pound per week
25.0 to 29.9	<0.5 pounds per week	>0.7 pounds per week
≥30.0	<0.4 pounds per week	>0.6 pounds per week

Note: Repeat weights if subsequent measurements are unusual. Further assessment, intervention and referral may be needed.

Helpful Hints

Unknown Pre-pregnancy Weight

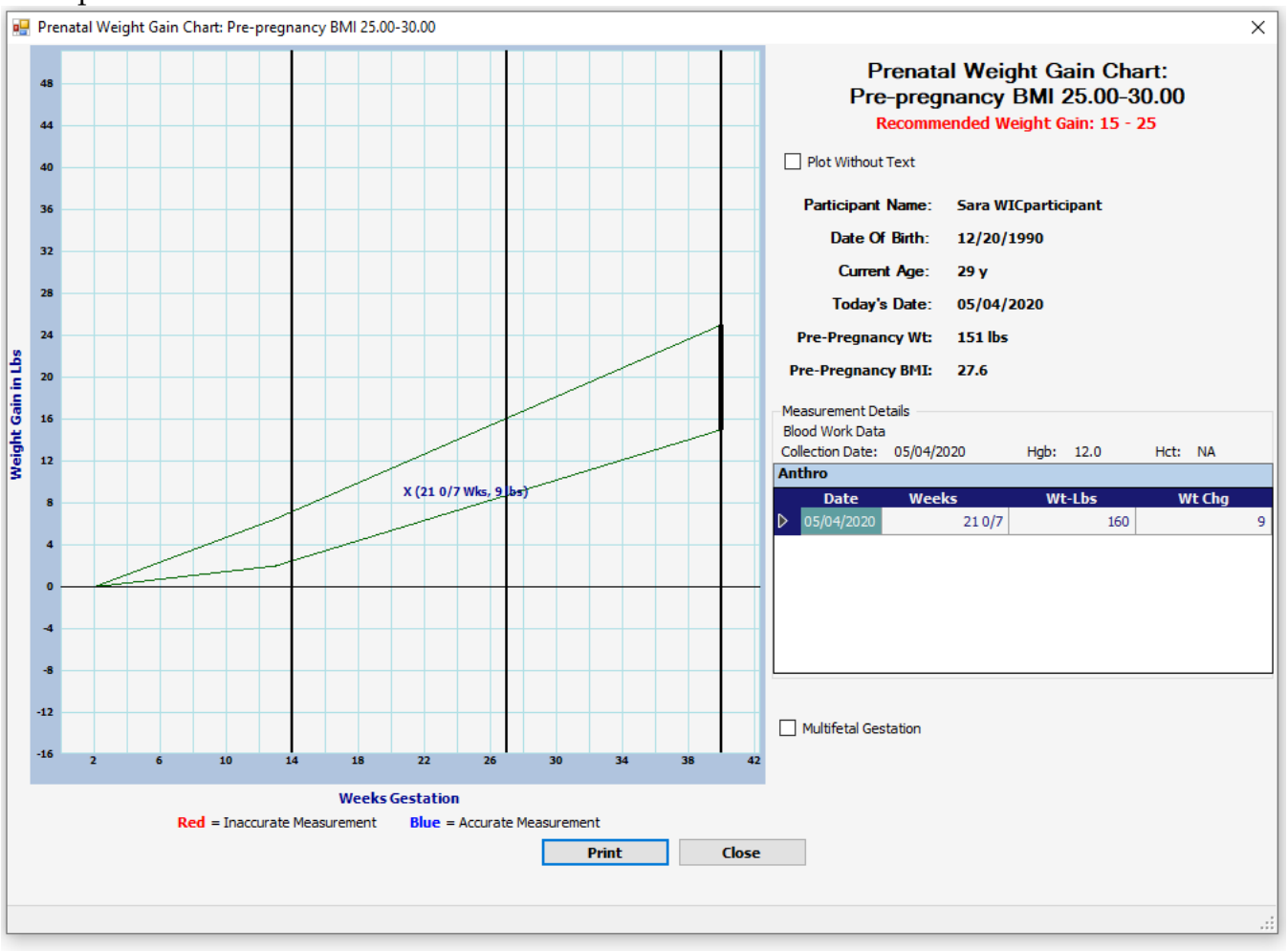
What if the woman does not know her pre-pregnancy weight? Most women will have some estimate of their pre-pregnancy weight. If the value seems reasonable in comparison to the woman's current weight, use the estimated weight. Questions about weight gain or loss since becoming pregnant may also be useful 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 you 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 you will need to use a current *Prenatal Weight Gain Chart (*see Appendix A*)*. The estimated 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 Focus. Note in her Focus care plan record that her pre-pregnancy weight is estimated.

Example:



1. Visual assessment = Overweight
2. # weeks gestation = 21
3. Mid-point for expected gain = 9 lbs.
4. Today's weight – 9 lbs = Pre-pregnancy weight e.g., 160 lbs – 9 lbs = 151 lbs.

Determining Weeks Gestation

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

Expected Date of Birth (DOB)

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. Do NOT create a new pregnancy record. The system will automatically update the LMP based on this information.

Frequency of Weights during Pregnancy

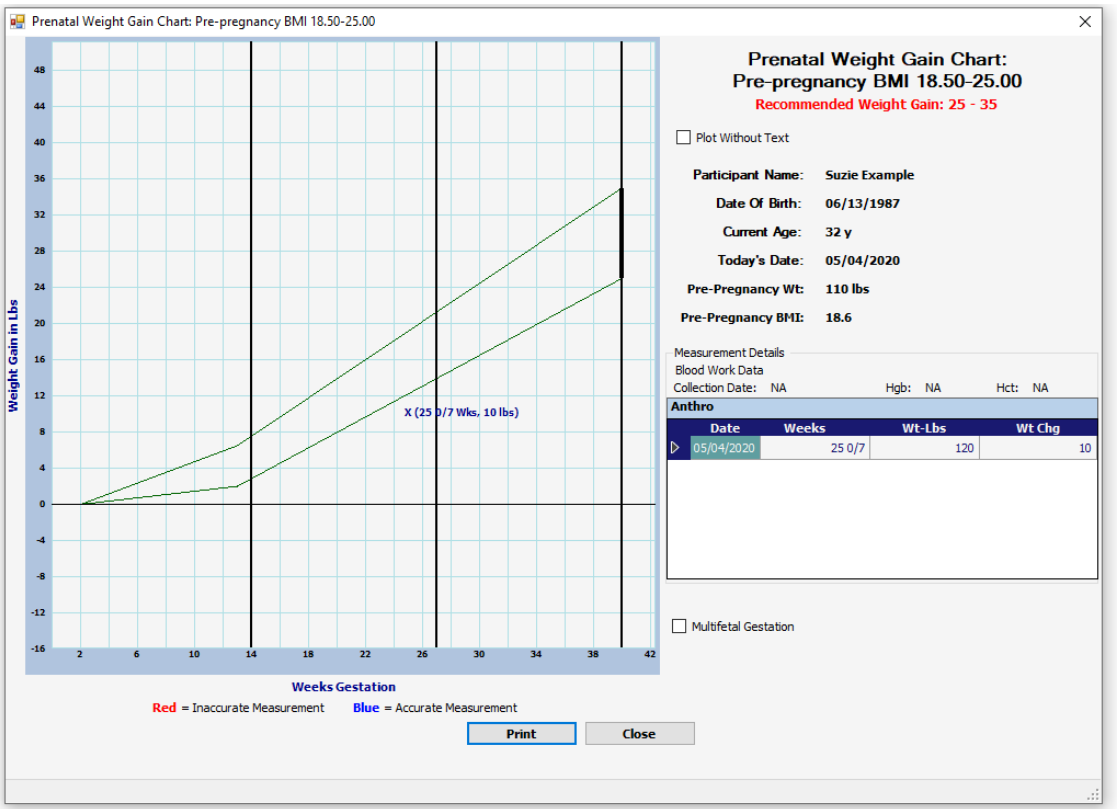
How often should a woman be weighed during her pregnancy? Because of the importance of a woman's weight gain in the outcome of her pregnancy, and because it is an easy measurement to obtain, staff can get weights at each in-person WIC visit.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

Case Study: Refer to the Example Prenatal Weight Gain Chart for Susie Example on the following page.

- Participant Name: Susie Example
- Date of Birth: 06-13-87
- Age: 32 years
- Today's Date: 2-11-20
- Expected Delivery Date: 6-1-20
- Pre-pregnancy Weight: 110 pounds
- Pre-pregnancy BMI: 18.6
- gestation: 25
- Current Weight: 120 pounds

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



ANSWERS

1. 25-35 pounds
2. 131 – Low Maternal Weight Gain

Section IV: Iron Deficiency and Blood Collection

Facts about Iron

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. Blood cells need iron so that they 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) causing them to not have much color. Children without adequate iron do not grow properly (in height or weight) and their brains do not develop properly. Low iron can also cause the immune system to not function properly so the person gets sick more easily. Pregnant women with low iron are more likely to give birth to low birth weight and premature babies and low iron may cause complications during delivery. 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.

> **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.

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. Severe iron deficiency can lead to one type of anemia, called iron-deficiency anemia. It is also more commonly seen in individuals of low income. For this reason WIC regularly screens participants to determine if they are iron deficient.

Iron-Deficiency Anemia

When a person does not get enough iron they stop making 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 there is in the body. 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. 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.

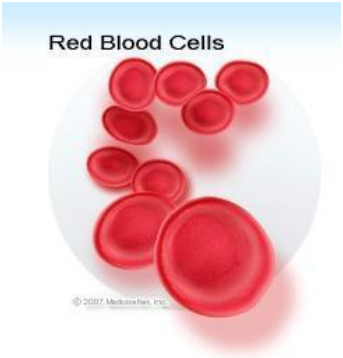
Detecting Iron Deficiency

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. Iowa WIC clinics determine iron level by measuring hemoglobin. 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 Test

Measuring hemoglobin concentration is a more accurate way to screen for iron deficiency than using a hematocrit value. 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. In Iowa, we use the Hemocue machine to conduct this test.



In Iowa, we also use a non-invasive machine called the Pronto, which some agencies are using instead of or in conjunction with the Hemocue machine to determine hemoglobin levels. The Pronto is a non-invasive pulse co-oximeter that can be used to measure hemoglobin in the blood.

Some participants may bring a hematocrit value taken at their doctor's to their WIC appointment and this can be accepted as long as it is within 90 days of the appointment and meets the screening schedule.

If you are a staff person who does blood work for participants it is important that you are familiar with the Blood Tests and Infection Control Guidelines p olicies as well as the Measuring Hemoglobin with Hemocue (or Pronto) procedures, all of which can be found on the web portal.

Variations in Normal Hemoglobin

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 dilution differences) 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.

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 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. However, record the hemoglobin or hematocrit level as obtained on the data system forms. Do not adjust the level to account for smoking in Focus.

Low Hemoglobin/Hematocrit - 201 (High Risk)

Categories: Children, infants, pregnant women, breastfeeding women and non-breastfeeding women.

Participants identified with low hemoglobin/hematocrit are considered high risk and the

computer system will automatically assign this risk factor based on the information entered into the Blood panel of Focus. This risk is defined as hemoglobin or hematocrit concentration below the 95 percent confidence interval (i.e., below the .025 percentile) for healthy, well-nourished individuals of the same age, sex, and stage of pregnancy. Additional information such as altitude adjustments and smoking can be found on the portal website>Resources>Risks and Critical Thinking Guides.

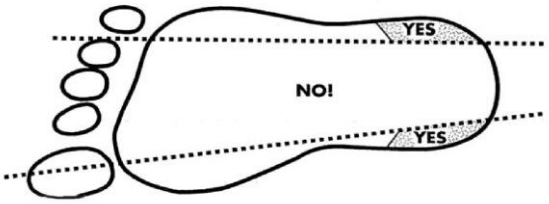
It is important for WIC staff members to remember that they are not diagnosing anemia. A diagnosis for anemia can only be made by a physician or other health care professional such as a physician assistant or nurse practitioner. The hemoglobin performed in the WIC clinic gives us the information to determine 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

TRAINING ACTIVITY

Online Training

- ❒ Hemoglobin Screening: Data Collection, Assessment and Implications



In order to ensure accurate results, a standard procedure must be used each time a hemoglobin test is performed. Iowa WIC requires all personnel that handle or collect bloodwork to complete the "Hemoglobin Screening: Data Collection, Assessment, and Implications" which can be found on the Prepare Iowa Learning Management System Website upon hire and every 2 years after that.*.

Please refer to your local and state agency policies and procedures around blood collection for additional 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 as outlined in the Infection Control Guidelines policy . Please refer to your local agency safety guidelines and procedures for reporting any blood or body fluid exposure.

The preferred blood collection site for babies is the heel. Refer to the Blood Tests policy for further guidance on blood collection for infants.

For children, blood is obtained from either ring or middle finger. Blood flow is improved if the infant's 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. Remember also to always wipe away the first three good-sized drops of blood with dry gauze and not "milk" the finger.

Equipment

There are two approved methods for obtaining hemoglobin levels in Iowa; using either a HemoCue or Pronto machine.

HemoCue

- HemoCue® Photometer
- Gloves
- Single-use lancet
- HemoCue® Microcuvettes (store at room temperature in the original container)
- Gauze or lint-free tissue
- Alcohol swab/wipe which is 70% isopropyl alcohol
- Adhesive bandages (as needed)
- Sharps container or other approved disposable container

A. Tips to collect enough blood: Collect blood from the applicant's ring or middle finger. The following tips may help you collect a sufficient blood sample:

- Have a participant or guardian massage there finger before cleaning it. Ask the applicant to hold hand down and make a fist several times. Poke the fleshy part of the finger.

B. Holding applicant's hand:

Two methods for holding the applicant's hand comfortably and safely are:

- Hold the applicant's entire hand with a firm palm-to-palm grip, or
- Hold the applicant's selected finger with your thumb and forefinger

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.

C. Procedure for Measuring Hemoglobin with HemoCue

1. Assemble equipment: Remove a cuvette from the vial, lancet, gauze, alcohol swab, bandage.
2. Put on disposable gloves.
3. Clean applicant's finger by rubbing with 70% isopropanol.
4. Hold the applicant's hand, and use a sterile lancet to puncture skin quickly and firmly, deep enough for blood to flow freely.

5. Wipe away the first three good-sized drops of blood with dry gauze. Do not "milk" finger.
6. Wipe away the first three good-sized drops of blood with dry gauze. Do not "milk" finger. This stimulates blood flow and clears tissue fluid from the site
7. Cover skin prick with a dry gauze and apply pressure.
8. Wipe off excess blood from both sides and back of the cuvette using the "butterknife" wipe technique which prevents drawing blood back out of the cuvette. This is also important to keep the inside for the Hemocue machine clean and prevent errors.
9. Are there air bubbles in the cuvette? If yes, repeat steps 6-7 with new cuvette. If no, go to step 10.
10. Insert filled cuvette in the HemoCue holder and push in completely.
11. Discard the lancet and cuvette in a puncture-resistant container.
12. Check skin prick for bleeding. Apply a bandage if needed.
13. Remove and discard gloves. Then wash hands or use waterless hand cleanser.
14. Record results in the data system and explain the results.

For additional information please refer to the Blood Tests policy and the Measuring Hemoglobin with Hemocue and Measuring Hemoglobin with Pronto procedures .

D. Maintenance

Calibration

Check the machine each clinic day before use. Follow these steps.

1. Turn on the machine (left button).
2. Pull the black cuvette holder out to the insertion position (a distinct stop). Screen will flash 888, then 101, then Hb with an hourglass figure at the bottom left of the screen.
3. If calibration verification takes place, record OK on the log. The machine is now ready to use. Screen will display 3 flashing dashes with cuvette icon at the top left corner.
4. If the calibration does not take place, record the error code on the log and log the error code that is displayed on the screen.

Note: When error codes appear, clean the inner chamber with a cotton-tipped swab or HemoCue cleaner, then repeat the calibration procedure.
Contact HemoCue, Inc. at 1-800-426-7256 to recalibrate the machine.

Pronto

Procedure for Measuring Hemoglobin with Pronto

1. Ensure that the participant is seated comfortably in a chair with their arm resting on a table
2. Select a pediatric or adult sensor for the participant
3. Connect the reusable sensor to the sensor port
4. Turn on the instrument
5. When the screen displays it is ready for testing to begin

6. Place the sensor on the participant finger
7. Begin the test and wait for the timer to countdown until complete.
8. When the test is successful there will be an audible tone and the screen will display results.
9. If results displayed are inconsistent with participant observed clinical status, repeat the test or test with HemoCue
10. Record results in the data system and explain the results
11. Wipe down the sensor site with a 70% isopropyl alcohol pad

How to ensure success a successful test is dependent upon several factors including:

12. Place the sensor on a site (finger for adult, thumb for child) that has sufficient perfusion with proper alignment of the sensor lights
13. Place the sensor on a site that has unrestricted blood flow
14. Do not secure the sensor with tape
15. Limit excessive motion
16. Limit excessive light

Quality control

Quality control and calibration tests are not required by agency staff as the machines is programed to complete these tests.

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 observe you performing a hemoglobin measurement using the *Observation Checklist*. This checklist is part of Level I and usually completed once all Level I modules and online Focus Training is completed. The checklist can be found on the Iowa WIC webpage.

Frequency of Hemoglobin Screening

Hemoglobin Screening for Pregnant Women

<u>Required</u>

- Certification Visit

WIC requires that hemoglobin screening be performed on pregnant women at their certification visit. Adequate iron is critical during pregnancy. The only way a woman can know if her iron is adequate is by testing. A pregnant woman who is found to have low hemoglobin levels < 9.0 gm or a hematocrit level of <27.0% must be referred for further medical evaluation. Local agencies are also encouraged to work with local health care providers in their service area to establish referral criteria that are mutually acceptable. Details can be found in the Blood Tests policy .

Hemoglobin Screening for Postpartum Women

Required

- Breastfeeding Woman – After the end of the pregnancy
- Non-Breastfeeding Woman – After the end of the pregnancy

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 during the pregnancy and to give the baby 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.

If a breastfeeding woman comes in to get certified for the first time between 6 and 12 months postpartum, a blood test is still required. Same for breastfeeding women who get on the program after she delivers and then comes in for their Breastfeeding Health Update about 6 months later. Their hemoglobin should also be rechecked at that time.

Hemoglobin Screening for Infants & Children

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.

Hemoglobin value required one time per year after 18 months if the previous value was normal. Otherwise Hemoglobin test is required at each certification.

Age	Schedule	Comments
Birth-12 months	Once between 9-12 months	• Bloodwork data should be obtained closer to 9 months of age for infants at risk for anemia (infants lacking a regular source of dietary or supplemental iron). • Bloodwork data can be done closer to the first birthday for infants who are not at high risk for anemia Note: A blood test between 6- 9 months can be used to

		meet this requirement. This is to be the exception
12-24 months	Once between 12-24 months	A blood test is recommended 6 months after the infant test (at around 15-18 months of age). Note: One test at or before 12 months cannot be used to meet the requirement for the 9-12 month infant screening and the 12-24 month child screening.
24-60 months	Once between 24-36 months Once between 36-48 months Once between 48-60 months Note: There may be more than 12 months between tests yet the child is still up-to date with the screening schedule.	Follow-up tests at 6 month intervals are needed for children who: • Had a low hemoglobin or hematocrit reading at the previous screening. A follow-up is not required for children with Thalassemia if they are followed closely by a physician. • Are currently at risk for anemia due to recent illness or diagnosis of a medical condition.

Examples of Required Data for Infant and Children Visits based on Time of Certification

Child Certified at 1 Year of Age

12 months	18 months	24 months
Length Weight Nutrition Interview Hemoglobin/ Lead Screening Immunization Records Update Breastfeeding	Length Weight Nutrition Interview Hemoglobin/ Lead Screening Immunization Records Update Breastfeeding Description as necessary	Length Weight Nutrition Interview Hemoglobin/Lead Screening Immunization Records Update Breastfeeding Description as necessary

Description as necessary		

Child Certified at 18 Months of Age

18 months	21 months	24 months
Length Weight Nutrition Interview Hemoglobin/ Lead Screening Immunization Records	Length Weight Nutrition Interview Immunization Records	Length Weight Nutrition Interview Hemoglobin/Lead Screening Immunization Records

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 the end of the woman's most recent pregnancy.
- For a baby or child: The hemoglobin/hematocrit must have been performed between 9-12 months of age, again between 12-24 months of age, and at least yearly after 24 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) and dated showing its source and that it was done within the last 90 days.

What if a child is uncontrollable and upset 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, medical condition, 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 blood panel.

Repeat Hemoglobin When Low Values Are Obtained

How soon should hemoglobin tests be repeated if values are found to be low? 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. Low hemoglobin values make participants high risk, and will need a second Ed follow up with a licensed dietitian if they did not see a dietitian at the initial cert.

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, you 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 15 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.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

When certifying a participant on the WIC Program, the Focus system will automatically assign a risk to the person for low hemoglobin/hematocrit without WIC staff having to look up these values. These participants are considered High Risk and need to be seen by a licensed dietitian per state policy.

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

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

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

   A. True B. False

4. Complete the following, describing when hemoglobin screenings are required:

A. Pregnant woman with prenatal care:
_____

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

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

D. Baby 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 low hemoglobin that been reported to the participant's primary care provider:

_____

5. 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?

1.

2.

ANSWERS

1. Hemoglobin

2. 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.

3. B

4. A. At certification

   B. Once every year

   C. Not until the baby is recertified as a child at one year of age

   D. Bloodwork data should be obtained at the next appointment closer 1 year of age for an infant who is not at high risk for anemia

   E. At certification

   F. At recertification

5. A. The hematocrit/hemoglobin value may not be more than 90 days old.

   B. The hematocrit/hemoglobin must have been performed while the woman was pregnant for this pregnancy.

Precautions to Prevent the Spread of Infection

Because a variety of infections can be transmitted whenever health care is performed, care must be taken to protect both the health care worker and the participant. Basic infection control guidelines must be followed. This includes using universal precautions when finger-sticks, heel-sticks, immunizations and other procedures dealing with body fluids are performed, and also when cleaning surfaces and items that have come in contact with body fluids.

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 work practices such as proper disposal of sharps and proper hand washing.

The spread of germs:
1. Airborne
2. Direct Contact
3. Fecal-oral Route
4. Blood Contact

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. 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 module 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:

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.

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.

Fecal-Oral Route. Fecal-Oral contamination is more common 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.

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 tests and we work with babies 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 you from diseases spread by feces, blood, and other body fluids:

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 such as changing a child's diaper, cleaning up feces, urine, and/or vomit. Regular hand washing or use non-water germicidal solution after seeing each participant. 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 microcuvette 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.

Wash your hands. Wash your hands. Wash your hands- especially after handling infants and children-wash your hands.

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.

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.

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.

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. Make sure to report the incident to your supervisor.

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.

Sharp objects, such as lancets used for poking a participant's finger 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 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, 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 fingertips. 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 babies).

*If a water supply is not available, use germicidal wipes or non-water germicidal solution to clean hands. The primary choice is to use: Solutions with a base that is at least 60% alcohol. Other potential substitutes include: Chlorhexidine and Iodophors.

SELF-CHECK: PRACTICE YOUR KNOWLEDGE

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?
   1.
   2.
   3.
   4.

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?

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

ANSWERS

1. Hand washing

2. 1. Airborne
   2. Direct Contact
   3. Fecal-Oral Route
   4. Blood & Body Fluid 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.

Section V: Additional Screening Requirements

Elevated Blood Lead Levels

The Iowa WIC Program requires a blood lead level screening and referral for every infant or child at their one year certification appointment or upon enrollment of a child. When lead screening information is provided to the WIC clinics, you need to determine if the lead level meets the criteria for "lead poisoning." Iowa WIC's current cut-off value for lead poisoning is ≥ 5 µg/dl.

If the infant or child has not had a test, staff members must make a referral to their health care provider or another program where the test can be performed. You will record this information on the Blood panel in the Assessment branch of Focus indicating *no* in the drop down asking if the test was performed in the last year.

If an infant or child had a lead test performed in the last year, record *yes* in the drop down. Ask for the results, if not known, choose the drop down option *unknown* for **Lead Level of 5 ug/dl or Higher**. If the value reported is 5 ug/dl or higher, choose *yes* in the drop down and enter the reported results.

TRAINING ACTIVITY

Now that you have completed this module, please take the Screening Module online post test located on the WIC Web Portal Training Personnel page. **Good luck to you!**

Appendix A- Prenatal Weight Gain Chart