

WIC: Making a Difference
for Families



ARKANSAS WIC PROGRAM Screening Module Level I

WIC Program
Arkansas Division of Health
Arkansas Department of Health and Human Services

Adapted from Colorado Department of Public Health And Environment WIC Program September 2006



Screening Module Evaluation Questionnaire Screening Module Level I

Dear Employee:

Your comments on this module would be helpful. After completing the module, please respond to the following questions and fax or mail them to:

Training Coordinator
Attention: WIC Program
Arkansas Dept of Health and Human Services
P.O. Box 1437 Slot H43
Little Rock, Arkansas 72203-1437
Fax: 501-661-2004

Check the appropriate title of your position:

- Nutritionist
- Home Economist
- Nurse
- Public Health Technician
- Clerk
- Other

1. How long did it take you to complete this module (actual hours spent in all activities - learning, reinforcement, quizzes, etc)?

2. On a scale of 1-3, how understandable were the concepts? Circle the number that most closely describes your thoughts.
1 = Easy to understand 2 = Understandable 3 = Hard to understand.
3. On a scale of 1-3, how understandable were the activities? Circle the number that most closely describes your thoughts.
1 = Easy to understand 2 = Understandable 3 = Hard to understand.
4. On a scale of 1-3, how readable was the module? Circle the number that most closely describes your thoughts.
1 = Easy to read 2 = Okay to read 3 = Difficult to read

Thank you for completing this questionnaire.



**ARKANSAS WIC PROGRAM
LEVEL I
SCREENING MODULE**

Your questions and comments and or suggestions about this module are welcome.

Please forward them to:

Nutrition Coordinator

Attention: WIC Program

Arkansas Department of Health and Human Services

P.O. Box 1437 Slot H43

Little Rock AR 72203-1437

501-661-2508

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SCREENING MODULE

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Screening Module Quiz can be obtained from your Regional Nutrition Coordinator or designated Nutritionist.

Performance Objectives

After completing Screening Module Level I you should be able to:

1. Explain the importance of obtaining anthropometric and hematological measurements using standard procedures.
2. Demonstrate correct procedures for obtaining :
 - Weights for infants, children and adults.
 - Head circumferences for infants and children
 - Lengths for infants and children
 - Heights for children and adults
3. Demonstrate accurate plotting on:
 - Growth Charts
 - Birth to 36 months
 - 2 to 21 years
 - Prenatal Weight Gain Chart
4. Demonstrate correct procedures for obtaining hemoglobins.

Introduction

Definition
Anthropometry:
 Measurement of body size

Examples of anthropometric measurements:

- Height
- Length
- Weight
- Head Circumference
- Waist Size
- Shoe Size
- Hat Size

When nutritionally assessing a WIC Participant for certification/recertification it is necessary to collect certain information. Included in this information are the heights/lengths, weights and head circumferences of participants and in most cases their hemoglobin levels. The Screening Module explains and describes the proper way to obtain and record this information. These measurements are used to assign nutritional assessment criteria during certification/recertification. This information is also used to assess a participant's health, target their individual nutrition education needs and interventions, and to monitor progress.

Height/length, weight and head circumference and Body Mass Index (BMI) are called anthropometric measurements. Anthropometric measurements refer to measurements of the size of the body. Anthropometric measurements include height, length, weight, head circumference, waist size, shoe size, and other measurements. In WIC we are primarily concerned with weight, height, length, weight, head circumference, and BMI (for children age two to five and women). These anthropometric measurements will be discussed in this module. This module will also discuss how to determine BMI and how to plot height, weight, and length, head circumference and BMI information on the proper growth and weight gain charts for evaluation.

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

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

Height and length are NOT the same and cannot be used interchangeably.

Definition:
Hematology
 The study of blood

Examples of hematologic measurements:

- Hematocrit
- Hemoglobin-used in Arkansas WIC clinics

Blood tests fall into a category called hematology. In WIC we use one hematological test to determine how much iron a participant has in their blood-the hemoglobin. Iron deficiency is a common problem for pregnant women and growing children. The amount of iron in a person's blood is an indicator of whether there is enough iron in their body.

It is important that all measurements used in screening WIC participants be performed using standard procedures. If two people perform a test in different ways the values cannot be compared and the information is not useful. It would be difficult to tell from one WIC visit to the next if an

infant, child or pregnant woman has gained or lost weight if standard procedures were not used. If one WIC staff member weighs pregnant women with shoes and coat while another weighs women without shoes and no coat, it would be impossible to compare the measurements from visit to visit. Without standard procedures being followed, it would be difficult to assess if the women were gaining or losing weight inappropriately.

Information gathered about weights and heights is also compared against national standards such as growth charts. These charts are created using standard procedures. Unless these same standard procedures are used to obtain heights, lengths and weights in the Local Health Unit WIC clinics the values cannot be compared to the "ideal" values of the national standards. Imagine the problem that would occur if WIC decided to weigh children with their shoes and wearing heavy clothing. The growth charts for children were developed using the weights of children wearing light clothing and no shoes. The data could make it appear that children participating in the Arkansas WIC Program were much heavier than other children in the United States. Some children may even be incorrectly labeled as being overweight and receive counseling for overweight when, in fact, the child was of normal weight.

Here is another example to illustrate why standard procedures are important: An infant is weighed at a WIC certification visit. The WIC staff member undresses the infant to weigh them in a clean dry diaper. Compared to a previous weight at the WIC clinic the infant does not appear to be growing well. The infant should have gained more weight between the two visits. Because of the concerns expressed by the WIC staff member, the mother takes the infant to the pediatrician for a checkup later that afternoon. The nurse at the pediatrician's office weighs the infant, but this time the infant is weighed wearing a wet diaper and a couple of layers of clothing. The infant's mother is surprised to learn that her infant has gained almost a half a pound in the two hours since her WIC visit. The nurse tells the mother that her infant is gaining weight adequately compared to the previous WIC weight. For an infant a half-pound difference in body weight can mean the difference between identifying an infant with growth failure and one with adequate growth. In this case the mother might be confused. WIC says there is concern about her infant's weight while the physician's office says there is no concern.

Using the weight obtained in WIC, the infant's growth appears poor when it is plotted and compared on standard growth charts. Using the weight obtained at the physician's office, the infant's growth appears to be normal when plotted and compared on the same standard growth charts. If the weight obtained in WIC is used for assessment, the mother can be referred to a Nutritionist to help her find solutions to improve the infant's growth. If the weight from the physician's office is used for assessment the infant's poor growth would not be addressed. This could have long-lasting consequences for the infant's growth and development.

From this example you can see how important it is that all anthropometric and hematologic tests be performed using standard procedures. The values are meaningless if standard procedures are not used.

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 plot the heights, lengths, weights, and head circumferences, of infants and children on standard growth charts to evaluate their growth. You will learn to plot the weight gain of a pregnant woman to determine if she is gaining weight appropriately. You will learn to compare hemoglobin values against standards to determine if a blood value for an infant, child or woman is appropriate for them.

The following begins a series of **Practices!** that occur throughout the Screening Module.
Complete each Practice! in order.

#1 Practice!



After finishing **#1 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

1. WIC performs two types of measurements, anthropometric and hematologic.
Give two examples of anthropometric measurements performed in WIC.
 - a. _____
 - b. _____
Give one example of a hematologic measurement performed in WIC.
 - a. _____
2. Height and length can be used interchangeably when measuring a child.
 - a. True
 - b. False
3. Give two reasons why is it important to always use the correct standard procedure when weighing or measuring a WIC participant?
 - a. _____
 - b. _____

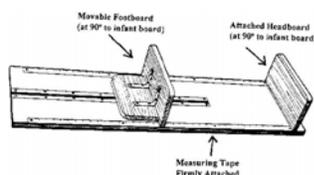
Anthropometry

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

Length

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

Infants and children up to the age of two years should have their length measured rather than height. Height is used after the child turns two years of age.



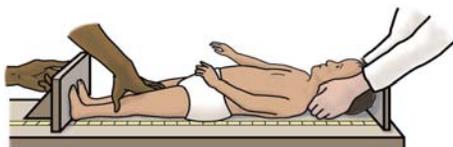
Definition:
Infantometer – device used to measure recumbent length in infants and children until age two.

Equipment

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

Technique

Two people are required to measure length. Remove all clothing down to a clean diaper or underwear. Children less than two years of age are measured supine (lying down on their back).



1. The infant or child is laid on his/her back on the infantometer.
2. One person (could be the caregiver) holds the infant's or child's head firmly against the headboard (infants' or child's eyes should be pointed directly at the ceiling).
3. The second person(WIC staff member) brings the infant's or child's knees together and extends the infant's or child's legs; one of the WIC staff member's hands should rest on the infant's or child's knees to prevent them from spreading or flexing while the other hand brings the movable foot board to rest firmly against the infant's or child's heels (toes pointed upward).

4. The length is read to the nearest 1/8 inch.
5. The measurement is recorded on the growth chart-
Birth to 36 months: boys or for girls.

The infantometer is equipment that is specifically designed for measuring the length of infants and children under two years of age. It is inappropriate to use measuring tapes or yardsticks attached to table tops. Inappropriate equipment has the tendency to measure "short" and cannot produce accurate measurements.

All Local Health Unit WIC clinics should be equipped with infantometers. If one is not available talk to your clinic supervisor or call your Regional Nutrition Coordinator or WIC Coordinator for ordering information.

Maintenance

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

Calibration

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

Head Circumference

The head circumference is measured until two years of age. The Certifying Professional Authority (CPA) refers to a physician any sudden increase or failure to increase at the rate predicted by the growth chart (particularly head measurements below the 5th or above the 95th percentile).

Equipment

Use a head circumference insertion tape. The insertion tape can be obtained from the State WIC Program office by using the WIC Nutrition Materials Order Form. Contact your Regional WIC Nutrition Coordinator or designated Nutritionist if you need assistance in obtaining insertion tapes for your clinic.



Technique

1. Sit the infant on the lap of the caregiver or other adult..
2. Undo or adjust hair style and remove accessories that will interfere with measurement.
3. Position head circumference tape just above eyebrows and ears, around the back of the head.
4. Pull the tape tight enough to compress hair.
5. Read measurement to the nearest one-tenth centimeter and record immediately.

#2 Practice!



After finishing **#2 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

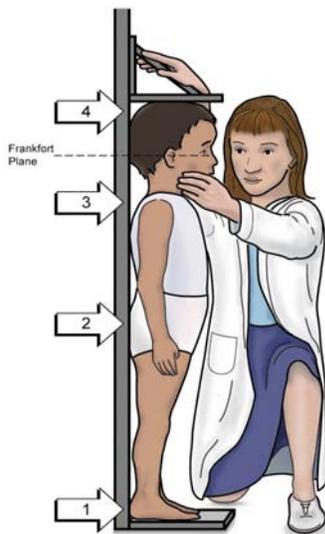
1. Until what age should a child's length instead of height be measured?
 - a. _____ 3 months
 - b. _____ 6 months
 - c. _____ 1 year
 - d. _____ 2 years
 - e. _____ 3 years

4. A child who is over two years of age should be measured lying down (length) or standing up (height) ?
 - a.Length b. Height

3. It is difficult for one person alone to obtain an accurate length measurement of an infant.
 - a.True b. False

4. Using an infantometer is less accurate than using a measuring tape attached to a table to measure the length of an infant or child under age two
 - a.True b. False

Definition:
Stadiometer: device used to measure height in children age two and older and adults



Height

Height is a measure of how tall a person is while they are standing upright.

The WIC Program requires that height be measured on all participants beginning at two years of age.

Equipment

A wall-mounted measuring device known as a **stadiometer** is designed for the purpose of measuring standing height and is the preferred form of equipment. A wall-mounted stadiometer should be placed on a wall that has no baseboard or carpet to interfere with measurements. Baseboards prohibit a person from placing their heels directly against the wall and carpet does not give a firm surface for an accurate measurement. Measuring rods attached to scales are not accurate and should not be used. Portable stadiometers or free-standing stadiometers work the same way as the wall-mounted types. (If information is needed about either the wall-mounted or portable stadiometer, contact your Regional Nutrition Coordinator or WIC Coordinator.)

The stadiometer headboard needs to be large enough that when placed on the top of the head it will also touch the wall or surface where the measuring tape is attached. The headboard needs to be able to form a right angle when touching the top of the head and the measuring tape.

Technique

1. Remove the participant's shoes, hats, and bulky clothing such as coats and sweaters. Undo or adjust hair styles and remove hair accessories that interfere with measurement.
2. The participant should stand erect, with shoulders level, hands at sides, knees or thighs together, and his/her weight evenly distributed on both feet. The participant's feet should be flat on the floor with both heels comfortably together and touching the base of the wall. When possible, all four contact points (i.e., the head, back, buttocks, and heels) should touch the wall while maintaining a natural stance (see figure in left margin). Some participants will not be able to maintain a natural stance if all four contact points are touching the wall. For these participants, at a minimum, two contact points—the buttocks and heels—should always touch the wall.
3. Position the participant's head so that they are looking straight forward.

4. Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the wall or surface. Check contact points as in the figure on the left to ensure that the lower body is still in the proper position and that the heels remain flat on the floor.
5. The measurement is recorded and plotted on the growth grid 2 to 20 years : Boys or Girls or on the Prenatal Weight Gain Chart (MCH 33) as appropriate.

Maintenance

The stadiometer must be kept clean and free of stray marks. The equipment should be checked monthly to ensure that it is perpendicular to the floor and accurately and firmly attached to the wall for the wall-mounted type. The headboard should be checked for signs of wear and replaced if loose, broken, or no longer creates a right angle with the wall or surface.



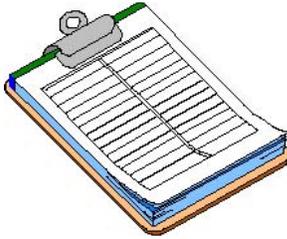
Calibration

The stadiometer should be compared yearly with a calibration rod or metal measuring tape to make sure it still gives accurate measurements. Portable stadiometers should be checked after each time it is moved to a different location.

All Local Health Unit WIC clinics should be equipped with stadiometers. Call your Regional Nutrition Coordinator or WIC Coordinator if a stadiometer is needed.

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

#3 Practice!



After finishing **#3 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

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

___ 1. The height of a participant can be measured with shoes on as long as the WIC clinic is consistent and always measures the participant the same way.

___ 2. When the height of a participant is being measured it is acceptable to let the participant wear shoes as long as the shoes do not have heels (for example tennis shoes or sandals).

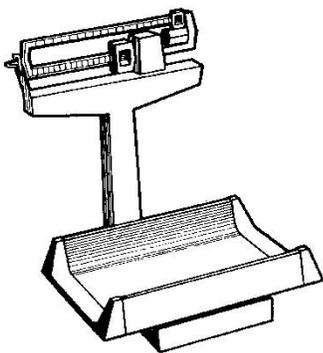
___ 3. When measuring a person's height their buttocks and heels at a minimum should be touching the wall.

___ 4. If a stadiometer is not available, height can be measured using a steel tape measure attached to the wall and a magazine as a headboard.

Weights

Weights are required on all WIC participants at certification visits. Weights are highly recommended on women at all prenatal visits, and on any WIC participant at follow-up visits when there is concern about growth or weight gain.

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



Infant Weight

This procedure should be used with infants and children under two years of age.

Equipment

A beam balance scale with a tray and non-detachable free-sliding weights is the recommended form of equipment. The scale should be marked in increments of one ounce. The scale must have a zeroing adjustment (screw type preferred). Electronic infant scales may also be used in the clinic as well.

Technique

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



1. Some form of disposable barrier (drape sheet, paper towels, pads, etc.) is placed on the scale to protect the infant/child from the cold metal plate. For sanitation reasons, the barrier is changed after weighing each infant/child.
2. The scale is balanced to zero with the barrier on it.
3. The caregiver is instructed to undress the infant down to a clean dry diaper or the child to underwear and place them lying in the center of the scale. If the infant/child is capable of sitting on their own the caregiver may place the them sitting in the center of the scale. It is important to protect the infant/child from falling in this instance.

4. Check to make sure the infant/child is not touching anything other than the scale's tray. Check feet and hands, especially if they are hanging over the side of the scale weighing tray. Check around the scale to make sure infant's/child's clothing or other objects are not interfering with the free movement of the scale tray. The appropriate weights are moved back and forth until the arrow on the right-hand side of the scale rests in the exact center. If a digital scale is used, follow directions for obtaining weights.
5. The weight is recorded to the nearest ounce and plotted on the appropriate growth chart.
6. The weights are returned to the zero position at the left-hand side of the scale. Follow manufacturer's instructions for zeroing digital scales.

A frightened infant/child may be weighed in the caregiver's arms if this is the only way a measurement can be obtained. The caregiver is weighed alone on an balance beam or electronic/digital adult scale and then with the infant/child. The caregiver's weight is then subtracted from the combined weight. On the growth chart document "weight obtained in caregiver's arms" next to the infant's/child's weight.

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

Maintenance

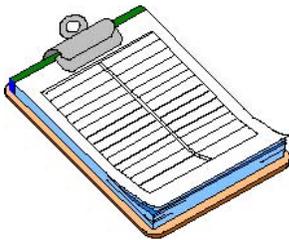
The scale must be kept in zero balance. The scale should be zeroed before each session and whenever the scale is transported. To zero the scale:

1. Remove any objects from the scale.
2. Place all the attached weights directly over their zero positions.
3. Move the adjustable zeroing weight or screw until the arrow on the right-hand side of the scale rests in the exact center.
4. Be sure to zero the scale when you place the protective barrier in the tray at each use.
5. For digital scales, follow manufacturer's instructions for any maintenance required.

Scales need to be periodically checked to make sure they record accurate weights. This is done by weighing standard weights on the scale to determine if the scale gives the correct reading. For example a 10-pound weight could be put on the scale to determine if the scale gives a reading of exactly 10 pounds.

The weights used for this purpose are specially designed to weigh exact amounts. Objects that weigh “about” 10 pounds cannot be used to check the accuracy of the scale. Check with your Regional Nutrition Coordinator or WIC Coordinator regarding availability of and/or obtaining standard weights.

#4 Practice!



After finishing **#4 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

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

___ Infants should be weighed nude.

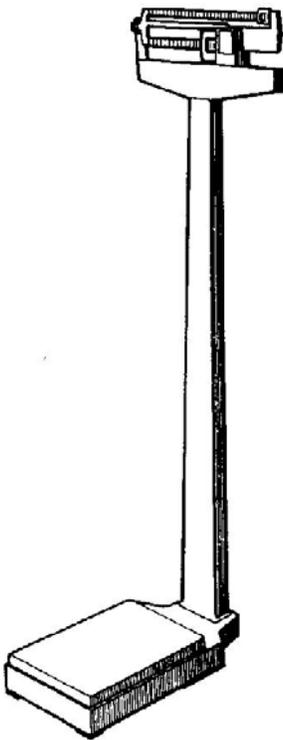
___ A frightened infant/child may be weighed in the caregiver's arms if this is the only way a measurement can be obtained.

___ An infant's weight should be read to the nearest ounce.

Measuring Standing Weight of Children and Adults

Equipment

A beam balance scale with a platform and non-detachable free-sliding weights is recommended for weighing children over two and adults. The scale should be marked in increments of not less than four ounces (1/4 pound). It must have a zeroing adjustment (screw type preferred). Electronic or digital scales may be used as well.



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

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

Technique

1. The participant is asked to remove all outer clothing (such as coats, heavy sweaters, snowsuits) and shoes. The prenatal client must be weighed in light clothing consistently throughout pregnancy. Children must also be weighed in light clothing.
2. The sliding weights on the horizontal beam should be in the zero position and the scale balanced. Follow the manufacturer's directions for zeroing an electronic/digital scale.
3. The participant is asked to stand in the center of the platform with their body upright and arms hanging naturally at their sides. It is important that the participant stand in the center of the scale in order to get an accurate weight.
4. The appropriate weights are moved back and forth until the arrow on the right-hand of the scale rests in the exact center.
5. The measurement is recorded to the nearest 1/4 pound and plotted on a growth chart 2-20 years: Boys/ Girls or a Prenatal Weight Gain Chart (MCH 33) for pregnant women.
6. The weights are returned to the zero position on the left-hand side of the scale after each use. Follow the manufacturer's directions for zeroing electronic/digital scales.

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 may hear. To protect the privacy of WIC clients there should be no more than one participant (does not include members of the same family) in the room when measurements are taken.

Maintenance

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

1. Remove any objects from the scale.
2. Place all the attached weights directly over their zero positions.
3. Move the adjustable zeroing weight or screw until the arrow on the right-hand side of the scale rests in the exact center.
4. Be sure to zero the scale when you place the protective barrier in the tray at each use.
5. For digital scales, follow manufacturer's instructions for maintenance required.

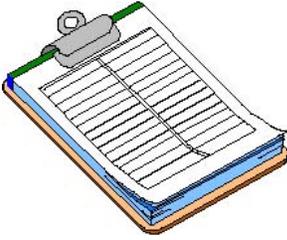
Scales need to be periodically checked to make sure they record accurate weights. This is done by weighing standard weights on the scale to determine if the scale gives the correct reading. For example a 10-pound weight could be put on the scale to determine if the scale gives a reading of exactly 10 pounds. The weights used for this purpose are specially designed to weigh exact amounts. Objects that weigh "about" 10 pounds cannot be used to check the accuracy of the scale. Check with your Regional Nutrition Coordinator or WIC Coordinator regarding availability of and/or obtaining standard weights.

What to do when participants who are unable to stand or are too large to be weighed:

When participants are unable to stand due to physical impairment, other ways of weighing need to be investigated. If the participant is a child, weights may be obtained in the caregiver's arms. The caregiver is weighed first and then the caregiver and child are weighed together. The child's weight is obtained by subtracting the two weights. Documentation should be made on the growth chart indicating that this is how the weight was obtained. For adults who are unable to stand it may be possible to find other facilities where a weight can be obtained (for example a clinic or physician's office where the adult receives health care or therapy). If special circumstances are known before the participant's WIC appointment, ask the participant to bring weight measurements with them to their WIC appointment. Again, documentation should be made on their WIC Screening Form and appropriate growth chart as to where or how the weight was obtained.

If a participant's weight is too great to be measured on the WIC clinic scale ask if the participant is being weighed at their physician's office. If the answer is "yes", ask them to bring their weight to the WIC appointment. It is important to exhibit sensitivity toward the participant under such circumstances. It would be inappropriate to suggest that the participant go to a loading dock to be weighed on an industrial scale. It may be necessary to forego obtaining a participant's weight under such conditions. (In this situation document the maximum weight your clinic scale will measure and place a "+" sign after the weight indicating that the participant weighs an unknown amount more than the maximum amount the scale will weigh. On the appropriate WIC Nutritional Screening Form mark the "Unknown" box in the weight section of the form.) Under these circumstances the participant's nutrition care and assessment need to be redirected to look more closely at diet or the participant's perception of her weight rather than on actual weight gain or loss. Participants in this situation should be seen by the Nutritionist for Increased Risk counseling, assessment and follow up.

#5 Practice!



After finishing **#5 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

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

___ Participants should be weighed with their shoes on.

___ Scales must be balanced at zero before each use.

___ Participants should not wear coats, heavy sweaters, or boots, or hold purses, packages, or toys while being weighed.

___ It is important that the participant stand in the center of the scale's platform to get an accurate weight.

___ Adult and child weights should be measured to the nearest pound.

Required Measurements for WIC: General Information

Required Measurements for Infants and Children Under Two

Head circumference, height/length and weight data must be collected on infants and children for nutritional assessment when they are being certified or recertified on the WIC Program. Head circumference is measured and recorded until age two. This information is necessary for assessment and certification for the WIC Program.

Length and Weight Measurements for Infants and Children Under Two

Length and weight measurements for infants and children under two are required at nutritional assessment for initial certification and and recertification and recommended when seen for any other services.

Head Circumference for Infants and Children Under Two

The head circumference is measured at each WIC nutritional assessment for certification or recertification until age two.

Height and Weight Measurements for Children Over Two

Height and weight measurements for children over two are required at nutritional assessment for initial certification and recertification visit.

Infant and Child Measurements From Another Source

Caregivers may bring height/length, weight and head circumference measurements from a physician's office or similar source. These measurements may be used for initial nutritional assessment for certification or recertification visits. The measurements, however, may not be more than 60 days old. When using measurements that were not taken by the WIC clinic it is important to know the source of and the date the measurements were taken. The date the measurements were actually taken needs to be considered when plotting head circumference, height/length and weight data on growth charts. The date and source of measurements also must be entered on the Nutritional Screening Form (WIC-5I or WIC-5C) in the appropriate section (Measurements Date and Source). When a caregiver brings head circumference, height/length and weight measurements from another source it may still be desirable to obtain current measurements in the WIC clinic. This is especially true for infants and for measurements that are more than a few days old. While regulations allow measurements to be 60 days old, measurements that are more than a few days or weeks old may not give a good assessment of the current status of an infant or child.

Head circumference, height/length and weight measurements from a source other than WIC must be from a reliable source. Measurements generally need to be performed by a health care professional using standard measuring procedures as outlined in this module and be documented in writing by the health care professional source. Verbal reports from parents may not be accurate and should not be accepted. Measurements taken by caregivers on a home scale or with a tape measure are not acceptable.

One challenge for all WIC clinics is explaining to caregivers why measurements taken in Local Health Unit WIC clinics do not exactly match those taken in other places.

There are a number of reasons why the measurements may not match. Scales and measuring devices for height and weight vary somewhat from place to place. Ideally all scales and devices are properly calibrated and maintained to give accurate values, but this is not always the case. Also, not all health care personnel choose to follow the same standard procedures for performing measurements as WIC does. Ask the caregiver several questions to determine if correct procedures were followed: how was the infant dressed when weighed?; was the child wearing their shoes or coat when measurements were performed? Finally, the weight of the human body does vary over the course of a day. A baby will weigh more before having a bowel movement or before emptying his/her bladder. A baby will weigh less just before they eat or more just after eating.

Variation in measurements from one location to the next is a good reason to encourage that measurements be made at your Local Health Unit WIC clinic whenever measurements are required or needed. Comparisons of measurements are most accurate when they are performed on the same equipment, using the same standard procedure. The WIC Program is very concerned about obtaining accurate head circumference, length/height and weight measurements. It is the reason for this module. It is the reason WIC clinic equipment needs to be carefully maintained and inspected. It is also the reason that WIC staff members are periodically evaluated for their ability to obtain accurate measurements.

Required Measurements for Women

Weight measurements are required for women at initial nutritional assessment certification and recertification visits. Heights are required for adult women only at their initial nutritional assessment certification visit since adults generally do not change height. Growing adolescent women, however, need to have their heights measured at each visit (measure until age 20).

As with infants and children, women may bring measurements from another source such as a health care provider as long as the measurements are not more than 60 days old and as long as the measurements were taken during the woman's current physiological status. For example, the weight of a pregnant woman must be taken during the time she is pregnant, the weight of a postpartum woman must be taken after the termination of her pregnancy.

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

Height and Weight Measurements for Women

Required Height and Weight measurements:

Height and weight data must be collected at initial nutritional assessment certification visit. Weight must be collected at each nutritional assessment certification visit while height is not required to be remeasured at recertification visits **IF** the woman is **NOT** a growing adolescent (up to age 20).

Recommended

Collection of weight data at all visits for pregnant women is recommended. For the prepregnancy weight, use a documented weight from a medical record or reported weight if it seems plausible. If the reported prepregnancy weight does not seem plausible or is unknown, use an estimated plausible weight but mark “Unknown” on the Prenatal Weight Gain Grid (MCH 33) and the WIC 5P or the WIC 5PP/BF. (See back of Prenatal Weight Gain Chart for instructions on documented, reported and unknown prepregnancy weights.)

Common Measurement Errors

As stated earlier it is very important that head circumference, height/length and weight data be collected accurately and in a standardized manner. Inaccurate measurements are of little value and can result in inaccurate assessments of a participant’s nutritional status. This can have serious health consequences for the participant. Some of the more common measurement errors that occur include:

For all measurements:

1. Inaccurate equipment.
2. Incorrect equipment used.
3. Restless or fearful participant who makes measurements difficult.
4. Reading equipment incorrectly.
5. Recording information incorrectly.

For length:

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

For height:

1. Incorrect equipment for age.
2. Footwear or headgear not removed.
3. Feet not straight or flat on floor.
4. Feet not back against measurement area.
5. Knees bent.
6. Body arched or buttocks forward (body not straight).
7. Shoulders not straight or touching measurement area.
8. Head not straight above body nor eyes looking forward.
9. Headboard not firmly on crown of head.
10. Headboard does not form right angle with wall or surface (for non-attached headboards).
11. Inappropriate headboard used (for non-attached headboards).

For weight:

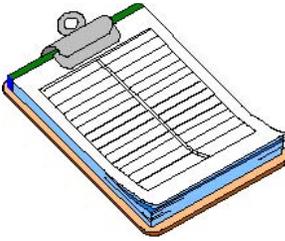
1. Scale not adjusted to zero before weighing.
2. Infant/child not weighed in dry diaper or underwear (two years of age or younger).
3. Child or woman weighed with heavy clothing and/or shoes.
4. Infant or child moving.
5. Child or adult holding toys, bottle, or holding onto scale.
6. Caregiver holding infant/child to steady them on scale.
7. Clothing or other objects placed under scale that affect movement of scale.

For head circumference

1. Restless or fearful participant who makes measurements difficult.
2. Hair accessories not removed.
3. Incorrect measuring tape used.
4. Measurement read incorrectly.
5. Tape positioned incorrectly for measuring.
6. Infant/child not held in lap of caregiver or adult.

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

#6 Practice!



After finishing **#6 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

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

- ___ 1. All measurements obtained on participants in the WIC clinic should be entered on the appropriate CDC growth chart or Prenatal Weight gain Chart (MCH 33).
- ___ 2. Infants should be weighed in light clothing with their shoes and coats removed.
- ___ 3. A pregnant woman may self-report her height when being nutritionally assessed for the WIC Program.
- ___ 4. It is recommended that pregnant women be weighed at each WIC visit.

Briefly answer the following:

- 5. How old may height and weight information be to be used to nutritionally assess a participant for the WIC Program? _____
- 6. A breastfeeding woman comes into your clinic to be recertified after having her baby. She was on WIC during pregnancy and this is her first visit after having the baby. It is the middle of winter and she does not want to take off her coat and boots to be weighed. She brings a form from her physician that shows her weight one week before she delivered (which was two weeks ago). Can this weight from the physician be used to nutritionally assess this breastfeeding woman?_____ Give a reason for your answer.
- 7. List two reasons why an infant's weight at the doctor's office two hours ago may be different than their weight right now in the WIC clinic:
 - a.
 - b.

Procedure For Charting Growth

Why Use Growth Charts?

Growth charts are designed to represent the normal growth of healthy children. In the WIC Program we use charts developed by the National Centers for Disease Control and Prevention (CDC). These charts were developed from studies on normal, healthy children in the United States and released in 2000. The Arkansas WIC Program uses four basic CDC growth charts. Two growth charts are for boys and two are for girls. The boys' and girls' charts are divided into those for children Birth to 36 months of age and those for children 2 to 20 years of age. You can learn more about the development of these growth charts and standards by visiting the CDC web site at <http://www.cdc.gov/growthcharts/>.

The CDC growth charts for infants (Birth to 36 months:Girls and Birth to 36 months:Boys) contain individual charts for length-for-age, weight-for-age, weight-for-length, and head circumference-for-age. The growth charts for children (2 to 20 years:Girls and 2 to 20 years:Boys) contain individual charts for stature (height)-for-age, weight-for-age, and BMI percentile-for-age.



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

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

Measurements need to be accurately plotted on the growth charts. Small errors in plotting can obscure growth failure or growth recovery. It is recommended that a tool called PrecisePlot (available from WIC Program State Office) be used when plotting growth points. A PrecisePlot is a clear plastic sheet with a small hole in the center. The hole is crossed by two black lines. The PrecisePlot is placed over the grid on the growth chart. One black line is lined up with the child's age, the other with the child's weight or height or length (depending on which is being plotted). On the weight-for-length grid, one line is placed on the child's weight and the other on their length. PrecisePlots are

available from the WIC Program state office. Contact your Regional Nutrition Coordinator/designated Nutritionist for more information. If a PrecisePlot is not available a ruler or right angle tool may be used to plot the growth points. However, the PrecisePlot tool is the preferred tool to use. Again, it is very important that growth measurements be plotted accurately.

NOTE: The PrecisePlot tool must be replaced when the center hole becomes enlarged. The accuracy of the plotting can be affected if the hole is enlarged.

Height or length and weight must be plotted at each nutritional assessment visit for certification or recertification and any other time that measurements are obtained.

1. Plotting must be according to the infant's or child's age - in months if under two years of age and nearest $\frac{1}{4}$ year if over age two.
2. Children under two years of age must be measured using the infantometer and weighed on the infant scale. The gender- appropriate growth chart for Birth to 36 months should be used.
3. Children two years of age and older should be measured standing up and weighed using the adult scale. The child's growth should be plotted on the gender-appropriate 2 to 20 years growth chart. If the child is unable to stand or if under 30 pounds, weigh using the table beam scale (infant scale) and plot weight on the gender-appropriate Birth to 36 months growth chart. For the child unable to stand, length should be measured with the infantometer and plotted on the gender-appropriate Birth to 36 months growth chart. Be sure to document in the chart why the measurements were obtained and plotted this way.

Body Mass Index

What is Body Mass Index (BMI)?

Body Mass Index (BMI) is a tool for indicating weight status, and is used to assess underweight, normal weight, overweight and obesity in adults. It is also used to indicate underweight, overweight and at risk for overweight in children (age two years and older) and adolescents. BMI correlates with body fat. The relation between fatness and BMI differs with age and gender. Children's body fatness changes over the years as they grow. Also girls and boys differ in their body fatness as they mature. This is why BMI for children and adolescents is gender- and age- specific and is referred to as BMI- for- age. BMI- for- age indicates a child's weight in relation to his/her height for a specific age and gender. In adults, women are more likely to have a higher percent of body fat than men for the same BMI and, on average, older people may have more body fat than younger adults with the same BMI.

There are several advantages of using BMI values. In children, BMI-for-age correlates with clinical risk factors for cardiovascular disease including hyperlipidemia, elevated insulin and high blood pressure. We know that risk factors in children become chronic diseases in adults. BMI-for-age during pubescence is related to lipid levels and high blood pressure in middle age.

As already mentioned, BMI-for-age in children correlates with risk factors for health problems. BMI ranges are based on the effect body weight has on disease and death.

As BMI increases, the risk for some diseases increases. Some common conditions related to overweight and obesity include:

- Premature death
- Cardiovascular disease
- High blood pressure
- Osteoarthritis
- Some cancers
- Diabetes

BMI is only one of many factors used to predict risk for disease. BMI is not a diagnostic tool and cannot be used to tell a person if he or she has a disease such as diabetes or cancer. It is important to remember that weight is only one factor that is related to disease.

BMI is a useful tool that can be used for indicating weight status from childhood to adulthood. Periodic, accurate measurements and growth records are important elements for screening health status.

The CDC recommends the use of BMI-for-age percentile charts to assess weight in relation to stature for children two years of age and older, as well as for adults. The CDC makes these recommendations because BMI-for-age:

1. is consistent with adult standards and can be used continuously from two years of age to adulthood;
2. tracks childhood overweight into adulthood obesity;
3. correlates with risk factors for cardiovascular disease, elevated insulin and high blood pressure, and;
4. is recommended by experts to evaluate overweight.

Calculating Body Mass Index

BMI can be calculated in two ways – the metric system and the English system. Both formulas are listed below. To make it easier to determine BMI, the WIC Program utilizes BMI tables. The tables for both children and adult women (pregnant and nonpregnant, i.e., postpartum/breastfeeding) are found in the online WIC Policies and Procedures Manual in the Appendix (APP 21-26).

Calculating Body Mass Index with the Metric System

Formula: weight (kg)/[height (m)]²

Calculation: [weight(kg)/ height (cm) X height(cm)] / 10,000

Example: A child's weight=16.9 kg and height = 105.4 cm

BMI= [16.9 kg / [105.4 cm x 105.4cm] / 10,000 = 15.2*

Calculating Body Mass Index with the English System

Formula: weight (lb)/[height (in)]² x 703

Calculation: [weight (lb) /height (in)/height (in)] x 703

Example: A child's weight = 37 lb and height = 41.5 in.

$$\text{BMI} = [37 \text{ lb} / [41.5 \times 41.5] \times 703 = 15.1^*$$

(* You would then plot the BMI number as BMI-for-age on the appropriate gender growth chart.)

BMI and WIC Nutritional Assessment Criteria

In keeping with CDC recommendations, BMI cut-offs for children are included in several WIC nutritional assessment criteria codes:

- 114 - At Risk for Overweight
- 113 - Overweight (Children)
- 103 - Underweight

These nutritional assessment criteria are based on the growth charts released by the Center for Disease Control and Prevention (CDC) in May 2000.

In addition, BMI has been incorporated into those nutritional assessment criteria used in the anthropometric assessment of women. These changes are based on information published by the National Heart, Lung, and Blood Institute (NHLBI). As mentioned before, there are separate BMI Tables for Pregnant Women and those who are not pregnant. (See tables in online WIC Policies and Procedures Manual APP-26). This is because while revised standards have been published for adult underweight, overweight, and obesity, new BMI standards have not been validated for pregnant women. The main concern is for underweight women because preliminary investigations indicate that over half of the women who are currently eligible for WIC for underweight would no longer be eligible if the new standards were adopted.

Weight during the early postpartum period, when most WIC nutritional assessments for certification occur, is very unstable. During the first four to six weeks fluid shifts and tissue changes cause fluctuations in weight. After six weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By six months postpartum body weight is more stable and should be close to the prepregnancy weight. In most cases, therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first six months after delivery.

Taking into consideration that the incidence of overweight has reached epidemic proportions, it is important for WIC to take a proactive approach to assessing for overweight. Once identified as a nutritional risk, WIC can also provide the appropriate client-centered nutrition education to assist participants in achieving a healthy weight and reduce the associated risks of overweight. (See online WIC Policies and Procedures Manual, Nutrition Education Plans.)

Body Mass Index-Based Nutritional Assessment Criteria:

1. Risk Code 114-At Risk of Becoming Overweight-Infant or Child

Nutrition Risk Code 114 applies to infants and children. It is the assessment of being **at risk** of becoming overweight. In keeping with WIC's role as a preventive program, criterion

114 was added. Evidence exists that the presence of obesity in a parent greatly increases risk of overweight in infants and preschoolers.

In assessment of an infant or child, the at risk for overweight criteria may be based on the **biological mother's status at conception or during the 1st trimester**. The mother's BMI status may be determined using the mother's weight and height that is either:

- a. self-reported by the mother (not by another person)
- b. documented on the Mother's WIC 5-P or WIC 5 BF/PP Nutritional Assessment form.

The CPA determines if the BMI is ≥ 30 using the **Body Mass Index (BMI) Table for Women**. (WIC Policies and Procedures Manual APP-26)

Children two years of age or older with a BMI-for-age that falls between the 85th and 95th percentiles may not be severely overweight, but they are at risk of becoming overweight in the not-too-distant future.

Therefore, the **child two years of age or older**, may be assessed for **at risk of becoming overweight** based on **his/her own BMI-for-age**.

In addition, the **child 12 months of age or older** of an overweight mother (BMI ≥ 30), can also be found at risk of overweight. In this case, **the biological mother's BMI** is based on her **CURRENT** weight and height.

The BMI of ≥ 30 of the mother is determined using a self-reported weight and height or a measured weight and height documented by the CPA that day, and using the Body Mass Index (BMI) Table for Women.

If the mother is pregnant at the time of the child's certification or has had a baby within the past six months, the CPA may use the prepregnancy weight to assess for obesity.

NOTE: This criterion **cannot** be used for children 24 to 36 months of age with a recumbent length measurement. BMI is based on standing height not recumbent length.

2. Risk Code 113: Overweight-Child

As a result of research and input from experts in the field, **infants and children less than two years of age are not to be assessed as overweight based on their own growth pattern**. Data show no increased risk of adult obesity based on weight-for-length during the first two years of life. Therefore, risk code 113, Overweight, applies only to children two years of age and older.

Use of the 95th percentile or above for BMI-for-age to define overweight identifies those children with a higher likelihood of being overweight as adolescents and adults with increased risk of obesity-related disease and mortality. It is recommended that an overweight child undergo an in-depth medical assessment and evaluation to determine the underlying cause. Overweight can result from excess intake of calories, deficient physical activity, or problems in feeding practices and/or family behavior.

BMI-for-age should be used to determine overweight whenever possible. Use weight for length **only** for children unable to stand and use the gender-appropriate Birth to 36 months growth chart. BMI is not calculated for children who have not had standing height measured.

3. Risk Code 111: Overweight Women

Women who are overweight at conception have increased obstetric risks for diabetes mellitus, hypertension thromboembolic complications, preterm birth, macrosomia, dysfunctional labor, and complications in surgical deliveries.

One goal of prenatal nutritional counseling is to achieve recommended weight gain. For the overweight woman, emphasis should be on selecting food choices of high nutritional quality and avoiding rich in calories but low in other nutrients.

4. Risk Code 103: Underweight–Children

For WIC purposes the 10th percentile is chosen as the cut-off in accordance with preventive emphasis of the program.

While progress along the 10th percentile may represent normal growth for some children, it may also be an indication of inadequate caloric intake and of an associated inadequate nutrient intake.

5. Risk Code 101: Underweight–Women

Underweight women who become pregnant are at a higher risk for delivery of low birth weight infants, fetal growth retardation and perinatal mortality. Prepregnancy underweight is also associated with a higher incidence of various pregnancy complications, such as antepartum hemorrhage, premature rupture of membranes, anemia, endometriosis, and cesarean delivery. Risk code 101 applies to all categories of women-pregnant, breastfeeding and postpartum. Also, note that **the cut-off category for the prenatal category is different from the breastfeeding/postpartum category.**

Summary:

- BMI-for-age is the recommended method for screening overweight and underweight children, age two and over.
- For children, BMI is age- and gender- specific.
- For adults, there are fixed BMI numbers that refer to specific tables.
- BMI references for pregnant women differ from BMI references for women who are not pregnant.
- Accurate and periodic measurements are important elements of any anthropometric screening.

Apply What You Have Learned

Steps to Plot BMI-For-Age:

1. Obtain accurate weight and height measurements.
2. Select appropriate growth chart.
3. Record data.
4. Determine BMI using appropriate table (calculate only if table not available).
5. Plot measurements.
6. Interpret plotted measurements.

Documentation

1. A growth chart must be included in each infant or child participant's WIC record as a permanent document.
2. The same age-appropriate growth chart should be used for each WIC visit.
3. The participant's name should be written in ink on the top of the growth chart. It is a good idea to also include the participant's birth date for easy reference.
4. The date of each visit and the actual value for the height and weight should be documented in the data entry table on the the growth chart.
5. Plotting points on the growth chart should be made carefully, yet be visible. Each plot point should be dated on the growth chart. (Caution: The PrecisePlot center hole can become enlarged after extended use. Use new PrecisePlot when this occurs.)

When looking at growth charts it is important to remember these points:

1. Heights and weights between the 10th and 90th percentiles are considered in the normal range. Some people think that everyone should be at the 50th percentile, but this is incorrect. It is normal for some children to be at the 25th percentile or even the 10th percentile.
2. One height and weight measurement cannot tell if a child is growing well or not. If a child is only seen once and both his height and weight are at the 50th percentile, it may be tempting to say the child has "normal" growth. For this to be true we would need to know where the child was in the past. If the child had been at the 75th percentile six months ago and now is at the 50th percentile then the child's growth is not "normal" and there is reason for concern.

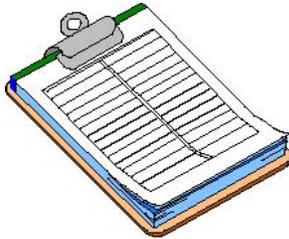


What Growth Charts Tell Us

1. Height and weight plotted at one age gives information as to how a child ranks in size in relation to other children of the same sex and age.
2. The plot for BMI-for-age tells us whether a child is overweight, underweight, or normal weight compared to other children of the same height and sex.

3. Several measurements plotted at different ages gives information on whether the child's growth is progressing adequately. Most children stay at approximately the same percentile during growth, although some change above and below is normal.
4. Measurements $<10^{\text{th}}$ and $>85^{\text{th}}$ percentiles may indicate the child is at risk for medical/nutritional problems and should be carefully checked for accuracy; referral may be indicated.

#7 Practice!



After finishing **#7 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

Assess the following WIC applicants for possible nutrition assessment criteria relating to BMI.

1. Sam is a 3½-year old with a weight of 37 pounds and 4 ounces. He is 41½ inches tall. Sam's mother is 5 feet, 4 inches tall and weighs 175 pounds. She had a baby five months ago, is currently breastfeeding, and her prepregnancy weight was 160 pounds. What is Sam's BMI? What is his mother's BMI? What nutrition assessment codes relating to BMI and growth, if any, apply to Sam?

(Hint: Use "BMI Table for Children," WIC Policies and Procedures Manual beginning on page APP-21. Find the page containing the child's height and weight. Some heights and weight appear on more than one page, so be sure both measurements appear within the range shown on the page. Find the point where the height and weight intersect. This value represents Sam's BMI. Whenever the height or weight is not listed, round to the closest number using the Rounding Rules listed at the bottom of the first page of the BMI Table for Children. Use BMI Table for Women, APP-26, to determine his mother's BMI)

2. A 2-week old boy, birth weight 7# 13 ounces, length, 19½ inches, today weighs 7# 15 ounces, has a length of 20 inches and a head circumference of 36.8 cm. He was breastfed for 1 week, and now takes 3 ounces Enfamil LIPIL every two to three hours. Mom is 5'5" and had a prenatal weight of 185 pounds.
3. A 2-year-old girl today weighs 30 pounds and is 38 inches tall. Mom is 5 feet tall and weighs 128 pounds and currently is 31 weeks pregnant. Her prepregnancy weight was 100 pounds. What growth chart is used to plot the girl's measurements? What percentile does her weight, height and BMI-for-age plot at? What risk code would apply to the 2-year-old? What risk code would apply to the mom?
4. A 3 ½ year- old boy weighs 40 pounds and is 38 inches tall. Mom is 5'3" and weighs 170 pounds. What growth chart would be used to plot the boy's measurements? What percentiles do his weight, height and BMI-for-age fit in? What is mom's BMI? What risk codes should be marked on the WIC-5C?

5. An 18-month-old girl today weighs 26 pounds, is 31½ inches long. Her mom is 5'5" and weighs 180 pounds. What growth chart should be used to plot the child's measurements? What percentiles do her weight, length and weight-for-length fall in? What is mom's BMI and what weight category does it fit in? What risk code(s) should be marked for the 18-month-old?

6. A 19-year-old primigravida woman is 5'7" and weighs 225 pounds and is 26 weeks pregnant. Her prepregnancy weight was 215 pounds. What form would you use to chart her pregnancy weight gain? What BMI category for prepregnancy weight does she fit in? What risk codes related to weight status does she meet?

Prenatal Weight Gain

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

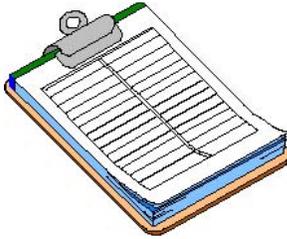
Because of the strong impact weight gain has on pregnancy, screening for optimal weight gain has become an integral part of the WIC Program. At nutritional assessment for certification, pregnant women are weighed and the weights are plotted on a Prenatal Weight Gain Chart (MCH-33). (Chart is not available online. Ask someone in the clinic for one). Weights at any follow-up visits are also plotted on the Chart. By following the weight gain on the Prenatal Weight Gain Chart recommendations can be made to help women make changes in their diet for an optimal outcome in pregnancy.

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. Studies indicate that normal weight (BMI 19.8-26.0) women have the healthiest pregnancies when they gain 25-35 pounds. Women who are underweight (BMI <19.8) need to gain more and women who are overweight and obese (BMI 26.1-29.0; BMI \geq 29.1) need to gain less. The following table lists the recommended weight gains for underweight, normal weight, overweight, and obese women and for a pregnancy with twins.

Classification	BMI	Recommended Weight Gain
Underweight	<19.8	28-40 pounds
Normal	19.8-26.0	25-35 pounds
Overweight	26.1-29.0	15-25 pounds
Obese	\geq 29.1	15 pounds
Twins		35-40 pounds*

* Underweight women should gain at the higher end of the range and higher weight women should gain at the lower end of the range.

#8 Practice!



After finishing **#8 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

1. A pregnant woman has a prepregnancy weight of 135 pounds and her height is 5'7". What is her BMI range? Is she overweight, underweight or normal weight? What is her recommended weight gain during pregnancy?
2. A pregnant woman has a prepregnancy weight of 105 pounds and her height is 5'6". What is her BMI range? Is she overweight, underweight, or normal weight? What is her recommended weight gain?
3. A pregnant woman has a current weight of 180 pounds and her height is 5'7". What is her BMI range? Is she overweight, underweight, or normal weight? What is her recommended weight gain?

Prenatal Weight Gain Chart

Definition:

Trimester: The nine months of pregnancy are divided into three time periods called trimesters. The first trimester ends at 13 weeks, the second at 26 weeks, and the final trimester ends with the birth of the infant (usually at 40 weeks).

Look at a Prenatal Weight Gain Chart (MCH 33). Notice the three diagonal lines on the front of the grid. These lines represent the recommended minimal weight gains for underweight, normal, and overweight women. Notice that the “normal” line ends at 30 pounds. The recommended weight gain for a normal weight pregnant woman is 25 to 35 pounds. The upper line is for underweight women and shows they should gain 28 to 40 pounds. The lower line is for overweight and obese women ends at 20 pounds and the recommended gain is 15 to 25 pounds. The grid does not show maximum recommended weight gains for pregnant women.

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 two 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. For a normal weight woman the curve shows that she should gain 2 to 4 pounds during the first trimester and then 3½ to 4 pounds per month during the second and third trimesters. Rates of weight gain that are significantly different from this pattern may have negative effects on the outcome of a pregnancy. Referral should be made to the Nutritionist for Increased Risk counseling when significant deviations occur from the recommended weight gains and rates.

Completing the Prenatal Weight Gain Chart:

1. Complete the box in the top left hand corner of the Prenatal Weight Gain Chart.
2. Determine Body Mass Index (BMI) status using the table in the upper right hand side of the Prenatal Weight Gain Chart, using height and prepregnancy weight.
3. Depending on a woman’s BMI choose the correct line to represent her recommended weight gain curve.
4. Across the bottom of the Prenatal Weight Gain Chart find the number that represents the number of weeks gestation for the current weight.
5. Plot the nutritional assessment for certification visit’s weight on the line that corresponds to the client’s weight status-Underweight, Normal or Overweight/Obese.(Instructions are also on the back of the Prenatal Weight Gain Chart) Make a visible dot at the point. Circle the dot and write the date and the weight above the dot.
6. At follow-up visits count the squares to indicate weight gained or lost. Start at the level of the last recorded weight.

Unknown Prepregnancy Weight

What if the woman does not know her prepregnancy weight? Most women will have some estimate of their prepregnancy weight. If the value seems reasonable/plausible 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 pregravid weight based on her current weight.

If a woman has no estimate of her prepregnancy weight and she is unsure if she has gained or lost weight compared to her current weight, it may be necessary for the WIC staff member to estimate the woman's prepregnancy 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. If it appears that the woman was normal weight prior to her pregnancy use her number of weeks of pregnancy and plot her current weight on the recommended weight gain curve for normal weight women. The same procedure would be used if the woman's prepregnancy weight appeared to fall in the underweight or overweight category. Be sure to make "Unknown" on the Prenatal Weight Gain Chart as well as the Nutritional Screening Form (MCH: WIC-5P).

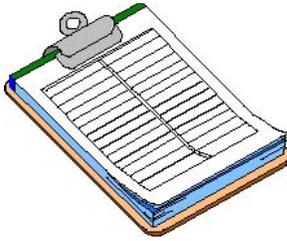
Determining Weeks Gestation

Use a gestational wheel to estimate weeks gestation. Line up the arrow with the 1st day of last period and read the estimated date of delivery arrow at 40 weeks. If you do not have a gestational wheel, contact your Regional Nutrition Coordinator or designated Nutritionist to assist you in obtaining one.

Changes in the Estimated Date of Delivery (EDD)

What if the woman reports at a follow-up visit that her estimated date of delivery has changed? What should be done depends on the situation. If the change is relatively small and the current Prenatal Weight Gain Chart can be easily altered, cross out the old EDD and write in the new one with the date that it was changed. Adjust new weights (i.e., weights taken since the EDD change) on the grid to represent the change in EDD. Some clinics plot weights in a different color when the EDD has been changed. Occasionally, a new EDD may require that a new Prenatal Weight Gain Chart be completed. This can happen when the changes in the EDD are substantial, when several changes in EDD are made during the pregnancy, or when the EDD has been moved back so that new weights fall on the grid before older weights. The deciding factor is whether the old Chart can still be easily understood using a new EDD. If the Chart becomes confusing because of multiple changes in the EDD a new Prenatal Weight Gain Chart may need to be made. Do NOT throw away old Charts when a new one is completed. The old Chart should be attached to the new one. Update the WIC-5P in the Update section when a new EDD is reported.

#9 Practice!



After finishing **#9 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

Complete a Prenatal Weight Gain Chart (MCH 33) for each of the following scenarios.

1. Audrey Lewis is a 26- year- old pregnant woman. She is 5'7" tall. Her prepregnancy weight was 140 pounds. At 16 weeks (June 16th) her weight was 143 pounds. At 24 weeks (August 12) her weight was 151 pounds. Her estimated date of delivery (EDD) is December 2. Her BMI is 21.87.
2. Antonia Adams is a 23–year-old pregnant woman. She is 5'10" tall. She does not know her prepregnancy weight, but she is fairly sure that she has not gained more than six to eight pounds since she became pregnant. Her current weight at 15 weeks gestation is 135 pounds. Her estimated date of delivery(EDD) is July 13.
3. What is the recommended weight gain for a pregnant woman with a BMI of 29?
4. What is the recommended weight gain for a normal weight woman?

Measuring Iron Status

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

Definition:

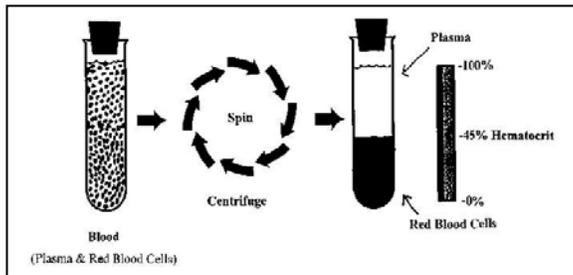
Pica: the abnormal craving for substances that are generally not considered food. Items that a person typically may crave include dirt, ice, paint chips, mothballs, hair and others. Pica was named after the Magpie bird (*Pica pica*) because magpies often search for food in garbage containers.

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

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

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 specific blood tests. Arkansas WIC clinics determine iron level by performing a hemoglobin blood test. Another test that can be done to measure iron is the hematocrit. Both tests are indicators of how much iron a person has in their body.

**Definition:**

Hematocrit – the proportion of red blood cells in a given volume of whole blood expressed in a percentage.

Hematocrit

The easiest way to determine if a person has enough iron is to measure the amount of red blood cells they have in their blood. The value from this test is called a hematocrit. Because red blood cells contain large amounts of iron, the more red blood cells a person has the more iron they generally have in their body. After spinning blood in a centrifuge, the hematocrit is the percentage of the blood that is made up of red blood cells

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

Hemoglobin

Definition:

Hemoglobin - measurement of the amount of the protein hemoglobin contained the red blood cells; expressed in volume measure of grams per deciliter (g/dl).

In Arkansas, WIC clinics measure the amount of iron in a person's blood by measuring hemoglobin values instead of hematocrits. The principle is very much the same as with a hematocrit. Hemoglobin is the protein inside red blood cells that contains iron and carries oxygen through the blood. Hemoglobin is what makes red blood cells look red and is where most of the iron is located in the red blood cell. So the more hemoglobin there is in blood, the more iron in the body. When measuring hemoglobin the red blood cells are not separated from the plasma. Instead, a special

instrument (hemocue) can measure the amount of hemoglobin by determining how red the blood appears to the instrument. Hemoglobin values are given as volume measures, i.e. grams/deciliter (g/dl).

Variations In Normal Hematocrit and Hemoglobin Values

Normal hematocrit and hemoglobin 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 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" hematocrit and hemoglobin values to be higher than usual. This does not 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 hematocrit values higher than normal.

As an example, if a woman lived at sea level and had a hematocrit of 38%/hemoglobin of 12.6 g/dl, her hematocrit or 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 hematocrit above 41%/hemoglobin above 13.6 g/dl to compensate. If her hematocrit stayed at 38%/hemoglobin at 12.6 g/dl she would have difficulty exercising or carrying out normal daily activities. Her body would need more iron so that she could make more blood cells to carry adequate oxygen to body tissues such as muscle and brain.

Anemia

When a person does not get enough iron they stop making hemoglobin. Without hemoglobin the body stops making red blood cells. As a result the hematocrit/hemoglobin drops and at some point the hematocrit/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 tiredness. They often look pale, have trouble concentrating, feel cold, and can have some changes in their skin, tongue, and appetite. If anemia gets severe enough a person will not feel well and the anemia can even become life-threatening. It is important to note that different people react to anemia differently. As was stated earlier, just because a participant says that she feels fine does not mean that she is not anemic. Some people become anemic with few symptoms, at least until the anemia becomes severe.

Pica

Pica (see text box on page 45) generally refers to the compulsive intake of nonfood substances over a sustained period of time. “Geophagia” specifically refers to compulsive eating of clay or dirt. Other substances that may be consumed include ice or freezer frost (pagophagia), laundry starch, soap, ashes, chalk, paint or burnt matches. However, abnormal craving for and intake of some food items, such as cornstarch or baking soda, are also considered examples of pica. Pregnant women who practice pica may be exposed to lead or other environmental toxicants. Pica has been associated with lower hemoglobin levels in pregnant women. Pica is not limited to pregnant women. It has also been observed in children who, like pregnant women, may be exposed to lead and other contaminants. Any WIC participant practicing pica should be referred to the Nutritionist for Increased Risk counseling.

Nutrition Risk Code 201: Anemia

Nutrition Risk Code 201: Anemia is an increased risk condition and the participant must be referred to the Nutritionist for Increased Risk nutritional counseling. Pregnant women who have severe anemia should also be referred to their physician immediately. Risk Code 201 for pregnant women lists hemoglobin values for anemia by trimester (See MCH: WIC-5 P Nutritional Screening Form – Pregnant Women in the online WIC Policies and Procedures Manual).

It is important for WIC staff to remember that they are not actually 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 present client-centered education, and to help make appropriate referrals.

Hemoglobin Procedure

In order to assure accurate results, a standard procedure must be used each time a hemoglobin is performed. This procedure is found in the Patient Care Volume – PRO-36. It is not available online. This is a nursing function, and may be performed by either a Public Health Technician (PHT), Licensed Practical Nurse (LPN), or Public Health Nurse (PHN) who is a Registered Nurse (RN). In some clinics, clerical staff also have been cross-trained to perform this procedure.

Frequency of Hemoglobin Measurements

Pregnant Women

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

A pregnant woman who is found to have severe anemia (defined as hemoglobin < 9 g/dl and hematocrit <27%) should be referred to her prenatal care provider immediately. Written documentation of the hemoglobin level should be provided to the woman to discuss with her provider.

Postpartum Women

Non-breastfeeding postpartum and breastfeeding postpartum women are required to have hemoglobins at their first certification after delivery (breastfeeding women are required to have hemoglobins done at their recertification also). Pregnancy results in a huge loss of iron from the woman's body. Some iron is used to form the infant and to give the infant a supply of iron for the first few months of life. During delivery a woman loses blood, the placenta, and other tissues which contained large amounts of iron. 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.

Infants

Infants are born with a store of iron in their bodies that they receive from their mothers during pregnancy. An infant's iron stores usually last for four to six months. Because of this, hemoglobins are not routinely performed to certify infants on the WIC Program except in certain circumstances as listed below:

Nutritional Risk Code 201 Anemia – Infants

A hemoglobin (or hematocrit) is required for an infant six to 12 months of age for initial nutritional assessment and certification .

No hemoglobin (or hematocrit) is required for an infant that is less than six months of age at initial nutritional assessment for certification. Anemia is not an approved risk criteria for infants less than six months of age.

However, for an infant that is nutritionally assessed and certified at less than six months of age, a hemoglobin (or hematocrit) is required when the infant is between the ages of nine to 12 months. Results of the test may be reported from the infant's medical provider or performed in the Local Health Unit.

During the nutritional assessment at certification, the CPA makes the appointment for the infant to return to the Local Health Unit between the ages of nine to 12 months for the hemoglobin check. The appointment date and time is given to the caregiver and is documented on the front of the WIC 5I under "Other Appt/ Date section. Results of the hemoglobin (or hematocrit) performed in the Local Health Unit are documented in the Comments Section of the MCH:WIC-5I.

If the caregiver prefers to have the test performed by the infant's primary care provider (PCP) and/or the CPA determines it is the most appropriate method for obtaining the hemoglobin, the CPA should:

1. Obtain the responsible adult's signature on an Authorization to Disclose Health Information Form (DHHS-4000) that is to be sent to the infant's medical provider for the results.
2. Document the Authorization to Disclose Health Information request on the front of MCH:WIC 5I under any one of the following: Continuity of Medical Care, Other Appt./Date and/or Comments Section. Hemoglobin (or hematocrit) results performed by another provider are filed in the participant's medical record.

NOTE: If a hemoglobin (or hematocrit) is performed between the ages of six to nine months this value may be used to meet the nine to 12 months hemoglobin check requirement. However, this level **CANNOT** be used for the nutrition assessment for recertification as a child after an infant is one year old.

WIC staff should encourage the caregiver/responsible adult to have the hemoglobin (or hematocrit) performed between nine to 12 months of age. A participant's certification is not interrupted for failure to comply.

If an infant's hemoglobin (or hematocrit) level is low at the nine to 12 months check, follow the current Anemia Protocol. This information is found in Memorandum No.18, July 31, 2003 in online Policies and Procedures under Yellow Memos. Search by "Anemia".

Children

*Children are required to have hemoglobins obtained at their initial nutritional assessment for certification and/or their recertification visit at one year of age and every certification through the age of 24 months. Hemoglobins are then required once a year as long as the hemoglobin is normal. If a child has a low hemoglobin at any time it should be repeated at each nutritional assessment for certification until it is normal. Follow Anemia Protocol (see above) if hemoglobins are low. See example below of an infant certified for WIC at 3 weeks of age:

Initial Certification at 3 weeks of age -----No hemoglobin required
 9 to 12 months of age -----Hemoglobin check- Normal
 Recertification around 13 months of age -----Hemoglobin check-Normal
 Recertification around 19 months of age -----Hemoglobin check-Normal
 Recertification around 25 months of age -----No hemoglobin check
 Recertification around 31 months of age -----Hemoglobin check-Normal
 Recertification around 37 months of age -----No hemoglobin check

*A child who is certified between 13 to 17 months must have a hemoglobin at their next certification visit at 19 to 23 months. Around 18 months is when a significant number of children become anemic. In order to identify these anemic children it is important to have a hemoglobin taken at 18 months or shortly afterwards (up until 23 months). Once this hemoglobin has been obtained and, if it is normal, then hemoglobins only need to be repeated one time per year.

Hemoglobins Performed Outside of the Local Health Unit WIC Clinic

Hemoglobins may be performed by WIC staff or by other medical personnel who are qualified to perform hemoglobins. A participant may bring a hemoglobin value from their health care provider's office for certification as long as the value:

1. is not more than 60 days old and,
2. for women, that the hemoglobin is performed during the physiological state for which she is being certified. A pregnant woman's hemoglobin must have been performed while she is pregnant. A postpartum woman's hemoglobin (breastfeeding or nonbreastfeeding) must have been performed after the termination of her pregnancy.

WIC staff need to have some assurance that hemoglobins (or hematocrits) performed outside the Local Health Unit 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 documented in writing (such as a prescription pad) that identifies its source.

What if a child is uncontrollable and highly agitated so that a hemoglobin cannot be performed or an adult refuses to allow the hemoglobin to be performed?

Nutritional assessment for certification cannot be completed without a hemoglobin value obtained either by WIC staff or other qualified health professionals.

Repeat Hemoglobins When Low Values Are Obtained

For Infants and Children:

- Follow Anemia Protocol from Memorandum No.18 (as mentioned in an earlier section of this module)

For Pregnant and Postpartum Women (breastfeeding and nonbreastfeeding):

- There is no WIC policy for repeating hemoglobin checks on WIC-only women (those women who are only receiving WIC services and no other services through the Local Health Unit) who had low values at nutritional assessment for certification. Refer the participant to the Nutritionist for Increased Risk counseling per policy **AND** refer to their health care provider. It is best practice to give the participant written documentation of their hemoglobin value so that they can discuss it with their provider.

High Hemoglobin

Occasionally a person being nutritionally assessed for certification will have a hemoglobin that is considered "high." While there are no WIC nutrition risk codes associated with "high" hemoglobin there may still be concerns which need to be addressed. Very high hemoglobins 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 hemoglobin values should be uncommon. Whenever a high value is encountered WIC staff should repeat the test to confirm the value. Technique should be reviewed to ensure that the test is being performed properly.

Pregnant Women

High hemoglobins during pregnancy (greater than 15.g/dl) are associated with premature birth and delivery of a low birth weight infant. When high values are

identified they should be confirmed. The participant should be given the hemoglobin information in writing so they can discuss it with their prenatal care provider.

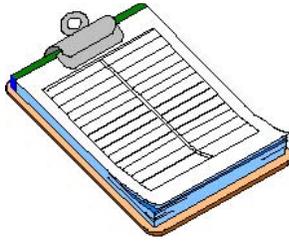
Postpartum Women (Breastfeeding and Nonbreastfeeding)

High hemoglobins (greater than 16.0 g/dl) should be confirmed and the participant referred to their primary care physician (PCP) with the information in writing to discuss with their PCP.

Infants and Children (age 6 months to 5 years)

High hemoglobin values in infants and children (greater than 15.5 g/dL) are also uncommon. When high values are identified they should be confirmed and the caregiver/responsible adult given the hemoglobin information in writing to discuss with their primary care provider (PCP). True high values can be indicative of a number of conditions that need to be reviewed by a physician.

#10 Practice!



After finishing **#10 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

1. For the following participants give the hemoglobin level that would result in them being assigned the Nutrition Risk Code #201-Anemia.
 - A. Pregnant woman in her 3rd trimester.
Hemoglobin_____
 - B. Breastfeeding woman.
Hemoglobin_____
 - C. Pregnant woman in her 2nd trimester
Hemoglobin_____
 - D. 5-month old infant.
Hemoglobin_____

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

3. List three symptoms that indicate a person may have anemia:
 - A.
 - B.
 - C.

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

5. Complete the following describing when hemoglobin measurements are required:
 - A. Pregnant woman with prenatal care:
 - B. Two-year-old child who had a normal hemoglobin done and documented by the PCP 2 weeks before nutritional assessment for recertification:
 - C. Five-day-old infant who is receiving iron-fortified formula:
 - D. Infant receiving iron-fortified formula who is being nutritionally assessed for certification for the first time at seven months of age:
 - E. Breastfeeding woman (10 days postpartum):
 - F. Three-year-old-child with a low hemoglobin previous certification at :

Precautions to Prevent the Spread of Infection

This section of the module presents a set of guidelines that all WIC staff should follow to protect themselves and participants from infections while working in the WIC clinic. People can carry viruses and bacteria that can cause illness. Even small infants and people who look healthy can carry viruses and bacteria. In fact, all people carry viruses and bacteria in their bodies. Many of these viruses and bacteria can make another person sick if they are transferred in the a certain way. **Stay healthy. Keep WIC families healthy.** 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 bacteria and viruses can be spread:

How bacteria and viruses are spread:

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

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

AIDS and hepatitis are two very serious diseases that can be spread by contact with another person's blood. Because we do not know which WIC participants have the viruses that cause these diseases (and often WIC participants unaware themselves that they are infected with these viruses) the blood from ALL participants must be handled carefully to prevent infection. There is no way to tell by looking at a person if they have the AIDS or hepatitis viruses in their blood.

blood and feces. In WIC we perform hemoglobin tests and we work with infants and children (who have dirty diapers or are in contact with other children with dirty diapers), so there is potential for you to contact another person's body fluids. Do not touch body fluids. Follow standard precautions: Wear gloves when needed. If you do come in contact with another person's body fluids wash your hands or other place on your body where you came into contact with the fluid!!

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

The HIV virus, which causes AIDS, is transmitted by certain body fluids and cannot be transmitted by casual contact such as shaking hands or hugging.

Body fluids can spread AIDS:

- Blood
- Semen
- Breast Milk
- Vaginal Secretions

1. Whenever you may come in contact with body fluids, wear gloves. This includes when you are drawing blood, performing a fingerstick or cleaning up an area that might include body fluids. This also includes when changing a child's diaper, cleaning up feces, urine, and/or vomit. Wash your hands when you remove the gloves. If you are performing a hemoglobin continue to wear your gloves or get a new pair if you will be handling any equipment that may be contaminated with blood (such as removing hemacue microcuvettes from the hemacue). Do not wear the gloves you use to collect blood to operate your computer. If your gloves are contaminated you will contaminate your computer. Germs are very small. You cannot see them. Gloves need to be discarded after use and between participants. Do not carry germs from one participant to another.
2. Wash your hands. Wash your hands. Wash your hands especially after handling infants and children—wash your hands.
3. If an accident does occur where blood or feces gets on equipment or the counter top, clean those surfaces with a disinfecting solution. This can happen when caregivers change their children's diapers during height and weight measurements. Wash the counter with disinfectant and wash your hands.
4. Wash your hands after coughing, sneezing, or blowing your nose. Keep your hands out of your face and hair. Do not bite or chew your nails. Do not place objects such as pens and pencils in your mouth. They are not clean and may be contaminated.
5. All materials that are saturated with blood or body fluids need to be disposed of in a special way. For example, cotton used to clean up excess blood off a participant's finger should be disposed of in a special biohazard container or bag. NEVER touch the blood-soaked cotton with your bare hands. Remember, to wear gloves and wash your hands afterwards. Do not throw blood-soaked materials into the normal garbage unless all garbage in your clinic is treated as biohazardous waste.

6. Wash your hands. Wash your hands. Wash your hands. Wash your hands when you go on a break, before and after lunch, after you use the bathroom, and before you go home.
7. Regularly clean surfaces where infants and children are placed. Use a disinfectant. Wear gloves when disinfecting and wash your hands when finished. Remember to wear protective clothing or equipment such as lab coats, no open toe shoes, and or goggles as indicated to help prevent body fluids from coming into contact with your skin. Report any incident of possible exposure such as needle stick, or blood soaked clothing to your immediate supervisor.
8. Wash your hands. Are you starting to see a trend here? Washing your hands is one of the single most important measures you can take to keep yourself from getting sick – at work or at home.
9. Sharp objects—the lancets used for pricking 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 from accidentally puncturing anyone while disposing of these items. Some of the most serious types of infections occur when blood from one person (as on a used lancet) is injected into another person (as when the lancet somehow pricks someone else’s finger during disposal). NEVER, NEVER, NEVER use the same lancet on more than one person, even when one person is the mother and the other is a child. If your clinic uses a multi-use lancet device always change the needle and the “stage” before using it on another person. Make sure the lancet housing is clean between participants.

In the extremely rare event that someone, including yourself, gets stuck with a used lancet , follow this procedure **IMMEDIATELY**:

1. Wash the area immediately with hot soapy water.
2. Notify your Regional Communicable Disease Nurse Specialist (CDNS) of the incident.
3. Notify your supervisor.
4. Have the WIC participant who is the source of the contamination remain in the clinic until the Regional CDNS can assist you in determining if additional lab may need to be obtained from the source.

It may be recommended that you take medication should an exposure occur.

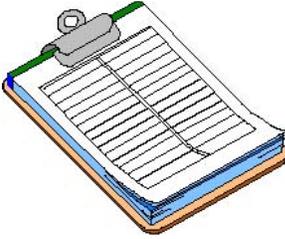
Handwashing

Handwashing is one of the most effective ways to reduce the spread of disease. Remember bacteria and viruses are so small you cannot see them. When you touch door knobs, toys, pens, and pencils you may pick up germs from someone who has touched them before you. This is especially true when working around children. Their hands touch many things that can then transmit bacteria and viruses to you. Wash your hands after seeing each WIC family member.

When washing your hands:

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 finger tips. Dry hands with a clean paper towel and then use the paper towel to turn off the faucet (remember that you turned on the faucet with your dirty hands!). Cloth towels should not be used to dry your hands if you intend to reuse them even once. Throw paper towels away after use. You should always wash your hands after using the restroom, before and after eating, after handling any body fluids, changing a child's diaper, disinfecting equipment, when you arrive at the clinic in the morning and before you go home and between each participant with whom you have close contact (as in weights and lengths for infants).

#11 Practice!



After finishing **#11 Practice!** check your answers at the end of the module and mark the ones you did not get correct. Review/discuss these with your Regional Nutrition Coordinator/designated Nutritionist.

1. The single most important action you can take to prevent the spread of infection is _____.
2. What are the four ways that bacteria and viruses can be spread?
 - A.
 - B.
 - C.
 - D.
3. Used 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 read the microcuvettes to determine the hemoglobin.
 - 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 ?



SUMMARY

Congratulations! You have now completed the second of Level I modules – Screening Module. You should now be competent to successfully perform both the anthropometric measurements and hematological measurements that are required to complete a WIC nutrition assessment.

Be sure you complete all of the Practice! quizzes in this module and submit them to your Regional Nutrition Coordinator or designated Nutritionist when you submit your Screening Module Quiz.

Complete the Screening Module Quiz and submit to your Regional Nutrition Coordinator or designated Nutritionist for scoring. You must attain a score of **90%** or greater to receive a passing score. Your Nutrition Coordinator or designated Nutritionist will review your Screening Module Quiz results with you.

Screening Module Practice! Answers

#1 Practice!

1. WIC performs two types of measurements – anthropometric and hematologic.
Give two examples of anthropometric measurements performed in WIC:

1. height
2. weight
3. length
4. head circumference

Give one example of a hematologic measurement performed in WIC:

1. Hemoglobin (or hematocrit in some cases)

2. Height and length can be used interchangeably when measuring a child.

- a. True
- b. False – Height and length are not interchangeable. These two measures give different values and are plotted on different charts.

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

Measurements must be done by a standard procedure so that:

- a. one measurement can be compared accurately to another
- b. measurements can be accurately compared against standards such as growth charts

#2 Practice!

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

- a. _____ 3 months
- b. _____ 6 months
- c. _____ 1 year
- d. 2 years Length is used for children under two years of age; height is used for children two years and older.
- e. _____ 3 years

2. A child who is over two years of age should be measured lying down (length) or standing up (height)?

- a. Length
- b. Height -Height is used when a child is two years of age and older.

3. It is difficult for one person alone to obtain an accurate length measurement of an infant.

a. True b. False

One person needs to hold the infant's or child's head against a headboard while another person holds the knees down and moves the headboard up against the infant's or child's heels.

4. Using an infantometer is less accurate than using a measuring tape attached to a table to measure the length of an infant or child under age two

a. True **b. False - Correct use of an infantometer is the most accurate method to measure the length of an infant or child under age two.**

#3 Practice!

 F 1. The height of a participant can be measured with shoes on as long as the WIC clinic is consistent and always measures the participant the same way.

 F 2. When the height of a participant is being measured it is acceptable to let the participant wear shoes as long as the shoes do not have heels (for example tennis shoes or sandals).

 I 3. When measuring a person's height their buttocks and heels at a minimum should be touching the wall.

 F 4. If a stadiometer is not available, height can be measured using a steel tape measure attached to the wall and a magazine as a headboard.

#4 Practice!

 F Infants should be weighed nude.

 I A frightened infant/child may be weighed in the caregiver's arms if this is the only way a measurement can be obtained.

 I An infant's weight should be read to the nearest ounce.

#5 Practice!

 F Participants should be weighed with their shoes on.

 I Scales must be balanced at zero before each use.

- T** Participants should not wear coats, heavy sweaters, or boots, or hold purses, packages, or toys while being weighed.
- T** It is important that the participant stand in the center of the scale's platform to get an accurate weight.
- F** Adult and child weights should be measured to the nearest pound.

#6 Practice!

- T** 1. All measurements obtained on participants in the WIC clinic should be entered on the appropriate CDC growth chart or Prenatal Weight gain Chart (MCH 33).
- F** 2. Infants should be weighed in light clothing with their shoes and coats removed.
- F** 3. A pregnant woman may self-report her height when being nutritionally assessed for the WIC Program.
- T** 4. It is recommended that pregnant women be weighed at each WIC visit.

Briefly answer the following:

- 5. How old may height and weight information be to be used to nutritionally assess a participant for the WIC Program?
 60 days
- 6. A breastfeeding woman comes into your clinic to be recertified after having her baby. She was on WIC during pregnancy and this is her first visit after having the baby. It is the middle of winter and she does not want to take off her coat and boots to be weighed. She brings a form from her physician that shows her weight one week before she delivered (which was two weeks ago). Can this weight from the physician be used to nutritionally assess this breastfeeding woman? **No** Give a reason for your answer. **The weight measurement for a woman must occur no more than 60 days ago AND in her current physiological state. Since she is breastfeeding now and her previous weight was performed when she was pregnant, the weight cannot be used even though it is not more than 60 days old.**
- 7. List two reasons why an infant's weight at the doctor's office two hours ago may be different than their weight right now in the WIC clinic: **Any of the following two:**
 - a. **scales are different**
 - b. **scales are not calibrated correctly**

OR

 - Different technique is used (infant dressed instead of dry diaper**
 - Infant may have just eaten, emptied their bladder or had a bowel movement between visits**

#7 Practice!

Assess the following WIC applicants for possible risk criteria relating to BMI.

1. Sam is a 3½-year old with a weight of 37 pounds and 4 ounces. He is 41½inches tall. Sam's mother is 5 feet, 4 inches tall and weighs 175 pounds. She had a baby five months ago, is currently breastfeeding, and her prepregnancy weight was 160 pounds. What is Sam's BMI? What is his mother's BMI? What nutrition assessment codes relating to BMI and growth, if any, apply to Sam?

(Hint: Use "BMI Table for Children," WIC Policies and Procedures Manual beginning on page APP-21. Find the page containing the child's height and weight. Some heights and weight appear on more than one page, so be sure both measurements appear within the range shown on the page. Find the point where the height and weight intersect. This value represents Sam's BMI. Whenever the height or weight is not listed, round to the closest number using the Rounding Rules listed at the bottom of the first page of the BMI Table for Children. Use BMI Table for Women, APP-26, to determine his mother's BMI)

Answer : Sam's BMI is 15.1. His BMI-for-age should be plotted on the CDC Growth Chart 2 to 20 years:Boys. He plots just below the 25th percentile BMI-for-age which is within normal range. His mother, because she has had a baby within the past six months, must be assessed using her prepregnancy weight and using the BMI Table for Women. The weight of 160 pounds falls between the 25.0 and 29.9 BMI range and is in the overweight category. Therefore, Sam is not at risk for overweight based on his mother's BMI. His mother's BMI would have to be ≥ 30 to be considered at risk of overweight. No risk codes relating to BMI and growth would be marked for Sam.

2. A 2-week old boy, birth weight 7# 13 ounces, length, 19½ inches, today weighs 7# 15 ounces, has a length of 20 inches and a head circumference of 36.8 cm. He was breastfed for 1 week, and now takes 3 ounces Enfamil LIPIL every two to three hours. Mom is 5'5" and had a prenatal weight of 185 pounds. What risk codes would apply to the infant? To the mother?

Answer:The baby is plotted using the Birth to 36 months: Boys growth chart. His weight, length and weight/length measurements all plot at the 50th percentile (based on plotting at Birth line-using CDC guidelines for calculating age). His mom's height and weight, when compared to the BMI Table for Women shows that she has a BMI >30 . Therefore the baby would be At Risk for Overweight (Risk Code 114) based on Mom's BMI at conception. Mom would meet Risk Code 111 due to Overweight at conception.

3. A 2-year-old girl today weighs 30 pounds and is 38 inches tall. Mom is 5 feet tall and weighs 128 pounds and currently is 31 weeks pregnant. Her prepregnancy weight was 100 pounds. What growth chart is used to plot the girl's measurements? At what percentile does her weight, height and BMI-for-age plot? What risk code would apply to the 2- year-old? What risk code would apply to the mom?

Answer: The 2-year-old is plotted using the 2 to 20 Years: Girls growth chart. Her weight is between the 75th and 90th percentile, her height is above the 95th

percentile, and her BMI- for- age is 14.6, between the 5th and 10th percentile. Risk Code 103 – Underweight – would apply to the 2-year-old. Her mom’s prepregnancy weight and height put her in the underweight category according to the BMI Table for Pregnant Women (BMI < 19.8). Risk Code 101- Underweight would apply to the mom.

4. A 3 ½ year- old boy weighs 40 pounds and is 38 inches tall. Mom is 5'3" and weighs 170 pounds. What growth chart would be used to plot the boy’s measurements? What percentiles do his weight, height and BMI-for-age fit in? What is mom’s BMI? What risk codes should be marked on the WIC-5C?

Answer: The boy is assessed using the 2 to 20 years:Boys growth chart. He is at the 95th percentile for weight and between the 25th and 50th percentile for height. His BMI- for- age is 19.5, which is > 95th percentile. Mom’s weight and height place her BMI at > 30, so the child is Overweight (Risk Code 113) and at risk for overweight (Risk Code 114) based on his mother’s BMI.

5. An 18-month-old girl today weighs 26 pounds, is 31½ inches long. Her mom is 5'5" and weighs 180 pounds. What growth chart should be used to plot the child’s measurements? What percentiles do her weight, length and weight-for-length fall in? What is mom’s BMI and what weight category does it fit in? What risk code(s) should be marked for the 18-month-old?

Answer: The 18- month- old girl’s measurements are plotted using the Birth to 36 months: Girls growth chart. Her weight plots at the 75th percentile, her length at the 50th percentile, and weight for length at the 90th percentile. Mom’s weight and height chart at the obese category (BMI > 30) using the BMI Table for Women. The girl would, therefore, be at risk for overweight, Risk Code114, based upon her mother’s BMI.

6. A 19-year-old primigravida woman is 5'7" and weighs 225 pounds and is 26 weeks pregnant. Her prepregnancy weight was 215 pounds. What form would you use to chart her pregnancy weight gain? What BMI category for prepregnancy weight does she fit in? What risk codes related to weight status does she meet?

Answer:This pregnant woman’s weight gain would be charted using the Prenatal Weight Gain Chart. (MCH 33). Using the BMI Table for Pregnant Women and her prepregnancy weight, she would fall into the obese category BMI > 29.1, and would meet Risk Code 111.

#8 Practice!

1. A pregnant woman has a prepregnancy weight of 135 pounds and her height is 5'7". What is her BMI range? Is she overweight, underweight or normal weight? What is her recommended weight gain during pregnancy?

Answer: BMI range = 19.8-26.0; Normal weight; 25 to 35 pounds recommended weight gain.

2. A pregnant woman has a prepregnancy weight of 105 pounds and her height is 5'6". What is her BMI range? Is she overweight, underweight, or normal weight? What is her recommended weight gain?

Answer: BMI range = <19.8; Underweight; 28 to 40 pounds recommended weight gain.

3. A pregnant woman has a current weight of 180 pounds and her height is 5'7". What is her BMI range? Is she overweight, underweight, or normal weight? What is her recommended weight gain?

Answer: Unable to answer this question due to incomplete data. For pregnant women, BMI is based on prepregnancy weight which is not given. Cannot use current weight unless the woman is in early pregnancy and reports she has not gained any weight since becoming pregnant.

#9 Practice!

1. Audrey Lewis is a 26-year-old pregnant woman. She is 5'7" tall. Her prepregnancy weight was 140 pounds. At 16 weeks (June 16th) her weight was 143 pounds. At 24 weeks (August 12) her weight was 151 pounds. Her estimated date of delivery (EDD) is December 2. Her BMI is 21.87.

Answer: See attached #1 Prenatal Weight Gain Chart

2. Antonia Adams is a 23-year-old pregnant woman. She is 5'10" tall. She does not know her prepregnancy weight, but she is fairly sure that she has not gained more than six to eight pounds since she became pregnant. Her current weight at 15 weeks gestation is 135 pounds. Her estimated date of delivery (EDD) is July 13.

Answer: See attached #2 Prenatal Weight Gain Chart

3. What is the recommended weight gain for a pregnant woman with a BMI of 29?

Answer: 15 to 25 pounds

4. What is the recommended weight gain for a normal weight woman?

Answer: 25 to 35 pounds

#10 Practice!

1. For the following participants give the hemoglobin level that would result in them being assigned the Nutrition Risk Code #201-Anemia.
 - A. Pregnant woman in her 3rd trimester.
Hemoglobin <11 g/dl
 - B. Breastfeeding woman.
Hemoglobin <11 g/dl
 - C. Pregnant woman in her 2nd trimester
Hemoglobin <10.5 g/dl
 - D. 5-month old infant.
Hemoglobin N/A – Does not apply to infants less than 6 months of age

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

Answer: Hemoglobin

3. List three symptoms that indicate a person may have anemia:
 - A.
 - B.
 - C.

Choose any three of the following: Tired, pale, poor brain development or function, increased infections or illness, altered taste or appetite, deformed finger nails, poor growth, changes in the skin or tongue, muscle weakness, low birth weight, premature birth, complications during delivery

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

A. True **B. False**

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

- A. Pregnant woman with prenatal care:

Answer: At nutritional assessment for certification

- B. Two-year-old child who had a normal hemoglobin done and documented by the PCP 2 weeks before nutritional assessment for recertification:

Answer: At least once a year after two years of age at nutritional assessment for certification as long as the hemoglobin is normal.

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

Answer: Between the ages of nine to 12 months (and then at one-year-old recertification visit and through age 24 months. See answer to B).

D. Infant receiving iron-fortified formula who is being nutritionally assessed for certification for the first time at seven months of age:

Answer: At nutritional assessment for certification (and then every certification visit through age 24 months. See answer to B).

E. Breastfeeding woman (10 days postpartum):

Answer: At nutritional assessment for certification

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

Answer: At every nutritional assessment for certification until the hemoglobin is normal. After return to normal, at least one time per year.

6. A breastfeeding woman who was nutritionally assessed for certification right after delivery must have another hemoglobin performed when she is nutritionally assessed for recertification when her baby is six months old.

A. True

B. False

7. When must a hemoglobin be performed on a nine-month-old infant who was originally certified at five days of age?

Answer: For an infant that is less than six months old at the time of nutritional assessment for certification, results a hemoglobin check must be performed between the ages of nine to 12 months.

8. A pregnant woman comes into WIC to be nutritionally assessed for certification. She just found out that she is four weeks pregnant. She had blood work done at her physician's office two months ago and has brought paperwork from the physician's office showing her hemoglobin. She would rather not have her finger pricked again for another hemoglobin value. What two conditions determine whether the hemoglobin value from the physician's office may be accepted for her WIC certification?

Answer:

- a. The hemoglobin value may not be more than 60 days old.
- b. The hemoglobin must have been performed while the woman was pregnant for this pregnancy.

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

___ Yes ___ **X** No **(It was taken before the woman was pregnant)**

#11 Practice!

1. The single most important action you can take to prevent the spread of infection is **handwashing**.

2. What are the four ways that bacteria and viruses can be spread?

Answers:

- A. Airbone**
- B. Direct Contact**
- C. Fecal-Oral**
- D. Blood Contact**

3. Used 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 read the microcuvettes to determine the hemoglobin.

- A. True** B. False

5. When is it acceptable to reuse a lancet to get blood from more than one person?

Answer: Never

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

Answer: follow this procedure IMMEDIATELY:

- 1. Wash the area immediately with hot soapy water.**
- 2. Notify your Regional Communicable Disease Nurse Specialist (CDNS) of the incident.**
- 3. Notify your supervisor.**
- 4. Have WIC participant that is source of contamination remain in the clinic until the Regional CDS nurse can talk with them. There are types of medical treatment that can help prevent infection under these conditions and the CDNS will assist you in following the approved procedures.**

