Anthropometric Measurements

Policy

USDA Federal Regulations: (1) Determination of nutritional risk. (i) Required nutritional risk data. (A) At a minimum, height or length and weight measurements shall be performed and/or documented in the applicant's file at the time of certification.

(B) Height or length and weight measurements and, with the exceptions specified in paragraph (e)(1)(v) of this section, hematological tests, shall be obtained for all participants, including those who are determined at nutritional risk based solely on the established nutritional risk status of another person, as provided in paragraphs (e)(1)(iv) and (e)(1)(v) of this section.

(ii) Timing of nutritional risk data. (A) Weight and height or length. Weight and height or length shall be measured not more than 60 days prior to certification for program participation.

(i) Certification forms. All certification data for each person certified shall be recorded on a form (or forms) which are provided by the State agency. The information on the forms shall include-

(7) Height or length, weight, and hematological test results

Authority

7 CFR Part 246.7(e)(1)(i)(A)*excerpt*
7 CFR Part 246.7(e)(1)(i)(B)
7 CFR Part 246.7(e)(1)(ii)
7 CFR Part 246.7(i)(7)

Procedures

Measurements from other credible sources such as a healthcare provider, child health program or Head Start agency can be used. Measurements must reflect the participant's categorical status (i.e. a measurement taken during the end of pregnancy cannot be used to certify her as postpartum) and measurements must meet specific timeframes to be used for certifications.

- WIC staff can take these measurements verbally from staff at the source, (e.g. nurse at the doctor's office or Head Start program)
- they may be faxed, mailed or emailed to the WIC clinic by the source or the
- parent, guardian, or participant can bring in the documentation from the source.

Recumbent length will be used for infants, children less than 2 years old and children 2 years or older who are less than 31 ½ inches tall. The following steps will be used:

- Remove the child's shoes, hat, coat and any heavy or bulky clothing, hair ornaments and braids on top of the head.

- Lay the child on a length board with the child's head against the headboard.
- Have the child's parent/guardian; use both hands to hold the child's head against the headboard with the child's eyes focused straight up.
- Extend the child's legs so that both soles are positioned flat against the board.
- Hold both feet with one hand and straighten both knees with the other.
- Recheck positioning.
- Slide the footboard firmly towards the feet. The soles must rest flat against the footboard.
- Read and record the measurements to the nearest 1/8-inch.

Note: If the child is 2 years old or older and is less than 31 ½ inches tall mark the check box for recumbent measurement in the data system and record the recumbent length. The cut-off for the 2000 NCHS/CDC growth chart for ages >24 months is based on standing height measurements. Therefore, recumbent length measurements may not be used to determine risks. However, these charts may be used as an assessment tool for evaluating growth in children aged 24-36 months who are not able to be measured for the standing height required. The data system will plot the measurement in red identifying it as an inaccurate measurement

Standing height will be used for women and children 2 years or older who are greater than 31 ½ inches tall. The following steps will be used:

- Ask participants to remove shoes, hat, coat, and other bulky clothing, hair ornaments or braids on top of head.
- Ask participants to stand erect with feet parallel and heels together. The participant's heels, buttocks, and shoulders should touch the wall or measuring surface, and eyes focused straight ahead.
- Slide the broca plane down to rest on the head, compressing the hair.
- Read and record the measurement to the nearest 1/8-inch.

Note: Young women may continue to grow and increase in height until their 21st birthday. Therefore, measure the height of all young women at each visit until they reach this age. Then the WIC data system will automatically carry the height measurement forward to the next anthropometric record.

For weighing infants 12 months and under use a infant balance beam or scale or an infant cradle for use with an adult scale and follow the steps below:

- Place cradle on scale if needed and balance scale to zero.
- Have the parent/guardian remove the infant's excess clothing and assure the infant has a dry diaper.
- Place the infant in cradle.
- Read and record weight to the nearest ounce.

For weighing women and children one year and older follow the steps below:

- Balance the scale at zero.
- Ask the participant to remove shoes and excess clothing, and check pockets for heavy objects such as keys or a cellphone. The participant's hands must be empty.

- Ask the participant to step on the center of the scale platform with arms hanging at sides.
- Read and record weight to the nearest ounce.

Weight gain during pregnancy is one of the primary determinants of a healthy outcome. The data system requires a valid entry in the field, prepregnancy weight. The pregnant participant's prepregnancy Body Mass Index (BMI) is used to determine the recommended weight gain range. The data system will calculate the prepregnancy BMI. Use the same BMI cut-offs to determine weight status and weight gain recommendations for adolescents. If the weight is unknown follow the steps below:

- Visually assess the woman's weight status category to decide if she was most likely underweight, normal weight, overweight or obese before conception.
- Calculate the number of weeks' gestation.
- Refer to a prenatal weight gain for her weight status category and determine the midpoint for the expected weight gain based on weeks' gestation.
- Subtract the expected weight gain from the woman's current weight and record this figure as the prepregnancy weight.
- Prepregnancy weight is used to determine individualized weight gain recommendations.

Using growth charts:

- The data system plots anthropometric measurements based on the 2006 WHO growth standards for birth to < 24 months and the 2000 NCHS/CDC growth charts for > 24 months for the appropriate age and sex group. This includes all premature infants who have attained a gestational age of at least 40 weeks. The data system will not plot or evaluate growth measurements for infants born prematurely (37 weeks gestation) and those who were low birth weight (5.5 lb.) who have not reached the equivalent age of 40 weeks gestation on the NCHS/CDC growth charts.
    - Measurements will be adjusted for gestational age until the age of 2 years for:
        - Premature infants (<38 weeks' gestation) who have reached equivalent age of 40 weeks' gestation, and
        - Children born at <38 weeks' gestation.
    - The data system will automatically adjust for gestational age either when:
        - A > 2-week difference is identified between the baby's actual date of birth and the expected date of birth that is completed on their enrollment panel or
        - If on the baby's birth measurement anthro panel record, the diagnosed week's gestation is filled in as being 37 weeks or less.
- The data system will plot the pediatric growth charts automatically.
- The data system will plot prenatal weight gain charts automatically.

Use the table below to further evaluate weight gain during pregnancy.

IF BMI is...	**THEN inadequate gain in 2nd and 3rd trimesters is...**	**2nd and 3rd trimesters is …**

<18.5	<1 pound per week	>1.3 pounds per week
18.5 to 24.9	<0.8 pounds per week	>1.0 pound per week
25.0 to 29.9	<0.5 pounds per week	>0.7 pounds per week
≥30.0	<0.4 pounds per week	>0.6 pounds per week

The provisional guidelines for twin pregnancies are as follows:

Normal weight women	should gain 37-54 pounds
Overweight women	should gain 31-50 pounds
Obese women	should gain 25-42 pounds
For all women,	a gain of 1.5 pounds per week in the second and third trimesters

For triplet pregnancies, the overall gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week throughout the pregnancy.

Best Practices

Note: Health History Cards are intended to facilitate the sharing of health data between a participant's health care provider and their local WIC agency and to reduce duplication of services. The cards have blanks for the participant's height, weight, and blood test results and can be ordered from the ISU Distribution Center. Health History Cards may be used in three ways:

- Your agency may provide a supply of cards to health care providers in your service area, as part of your outreach efforts. Health care providers can then use the cards to share data with your agency.
- If a participant has a regular appointment with her health care provider before the next certification, give the participant a card to take to the appointment.
- When medical information is obtained at the WIC appointment, this should be entered on the card for the participant to share with the health care provider at the next appointment

If necessary, use a footstool to read the measurement tape at eye level.

Do not use the height-measuring device on a balance beam scale. The head piece is rarely

attached at a 90-degree angle.

If a child is uncooperative or cannot stand up, weigh the child's caregiver holding the child, and then weigh the caregiver alone. Subtract the second value from the first to determine the child's weight. If your scale has a tare capability you can weigh the child's caregiver and tare out their weight before weighing them again holding the child.

If it is not possible to weigh an applicant because her weight exceeds the capacity of the scale, ask her if she has been weighed recently and what her weight was. It will also be necessary to estimate pregnancy weight gain to date unless she brings weight data from her primary provider or other source of prenatal care

Unusual measurements (for every participant type) should be repeated to remove any doubt of error. Suggested best practices include the following:

- Record in nutrition care plan that measurement has been repeated for future reference.
- Record any contributing observations in the nutrition care plan (e.g., recent illness, tall parents, family disruptions such as divorce, description by parents as a "poor eater," medications that may affect appetite or water balance).
- Do an in-depth assessment and make appropriate referrals.

There are times when it is difficult to obtain an accurate measurement. Examples include non-compliant children, ornate hair ornaments, casts, missing limbs, inability to stand, contractures, frequent movement, and faulty equipment. When any of these situations exist, obtain a measurement using the best technique possible under the circumstances. Then record the reason for potentially inaccurate measurements in the data system. This information will help with future interpretation of measurements and growth patterns.

Use of growth charts:

The growth of premature infants (born $\leq$37 weeks) or low birth weight (5.5lbs) who have not reached the equivalent age of 40 weeks gestation may be assessed using a growth chart for low birth weight or very low birth weight infants consistent with the protocols of the local medical community where the WIC clinic operates. An example of such a chart is the Infant Health and Development Program (IHDP). The state WIC office is not providing electronic or hard copies of this chart.

A single plot of height-for-age and weight-for-age allows you to compare the child's height and weight to children of the same age and sex. A length-for-weight chart or a BMI-for-age chart provides information about the child's proportions. Continued use of the growth chart provides a visual portrayal of the child's growth pattern. These charts can be viewed and printed.

A series of measurements is needed to accurately evaluate a child's growth. When discussing growth charts with caregivers, ask them if it would be helpful to go over the growth chart. Reinforce that children grow differently and at different rates and that all are normal. Focus on behaviors, not outcomes.

Interpret each of the three graphs after considering the information provided by the other two. If

you observe any of the following growth patterns, consider the corresponding factors.

Pattern	Factors to Consider
Length/age <2.3rd percentile Weight/age <2.3rd percentile Weight/length <2.3rd percentile BMI-for-age 5th percentile	Parents' size Recent illness Appetite Recent growth spurt Child's growth pattern
Stature/age >95th percentile Weight/age >95th percentile Weight/length >97.7th percentile BMI-for-age between 85th-94th percentiles BMI-for-age 95th percentile	Parents' size Expected growth spurt Family stress Usual growth pattern
Movement over two growth channels for any measurement Note: Growth channels are indicated by the 2nd, 5th, 10th, 25th, 50th, 75th, 90th, 95th, and 98th percentile lines on the Birth to <24 months' charts. The 85th percentile appears on the 2-5 Years chart	Changes in environment Family history of obesity Family history of short stature Recent or chronic illness
Flat growth curve for any measurement	Changes in environment Recent illness Family history of short stature

Use of Prenatal Weight Gain Charts:

A series of measurements is needed to accurately evaluate prenatal weight gain. At subsequent appointments, if weight is updated, the system will plot weight gain at the point corresponding to the number of weeks' gestation.

Compare weight gain at any point in pregnancy to the lines corresponding to the recommended weight gain range for the participant. Measurements far from the lines may indicate that weight gain is too fast or too slow.