How to Weigh and Measure Children


Precautions Before Measuring

A. Layout of the Procedures

Each step of the measurement procedures is directed at specific participants, who are named in bold letters at the beginning of each step: e.g. “Measurer”, “Assistant”, etc.

B. Two Trained People Required

Two trained people are required to measure a child’s height and length. The measurer holds the child and takes the measurements. The assistant helps hold the child and records the measurements on the questionnaire. If there is an untrained assistant, such as the mother, then the trained measurer should also record the measurements on the questionnaire. One person alone can take the weight or arm circumference of a child and record the results if an assistant is not available.

C. Measuring Board and Scale Placement

Begin to observe possible places where the board can be positioned and the scale hung as soon as you walk towards a sample household. Be selective about where you place the measuring board and scale. It is best to measure outdoors during daylight hours. If it is cold, raining or if too many people congregate and interfere with the measurements, it may be more comfortable to weigh and measure a child indoors. Make sure there is adequate light.

D. Age Assessment

Before you measure, determine the child’s age. If the child is less than two years, measure length. If the child is two years of age or older, measure height (see Annex C). If accurate age is not possible to obtain, measure length if the child is less than 85 cm. Measure height if the child is equal to or greater than 85 cm.

E. When to Weigh and Measure

Weigh and measure after verbal information has been recorded on the questionnaire. This will allow you to become familiar with the members of the household. DO NOT weigh and measure at the beginning of the interview, i.e. as soon as you enter a household, which would be more of an upsetting intrusion.

F. Weigh and Measure One Child at a Time

If there is more than one eligible child in a household, complete the entire questionnaire, including the weighing and measuring of one child. Then proceed with the next eligible child’s questionnaire in the household. DO NOT weigh and measure all the children together. This can
easily cause confusion and will create a greater chance for error, such as recording one child’s measurements on another child’s questionnaire. Return measuring equipment to their storage bags immediately after you complete the measurements for each household.

G. Control the Child

When you weigh and measure, you must control the child. The strength and mobility of even very young children should not be underestimated. Be firm, yet gentle, with children. Your own sense of calm and self confidence will be felt by the mother and the child.

When a child has contact with any measuring equipment, i.e. on a measuring board, in the weighing pants or with an arm circumference tape, you must hold and control the child so the child will not trip or fall. Never leave a child alone with a piece of equipment. Always have physical contact with the child, except when you must let go of a child for a few seconds while taking the weight.

H. Coping with Stress

Since weighing and measuring requires touching and handling children, normal stress levels for this type of survey work are higher than for surveys where only verbal information is collected.

Explain the weighing and measuring procedures to the mother, and to a limited extent, the child, to help minimize possible resistance, fears or discomfort they may feel. You must determine if the child or mother is under so much stress that the weighing and measuring must stop. Remember, young children are often uncooperative; they tend to cry, scream, kick and sometimes bite. If a child is under severe stress and is crying excessively, try to calm the child or return the child to the mother for a moment before proceeding with the weighing and measuring.

Do not weigh or measure a child if:

a. The mother refuses.

b. The child is too sick or too distressed.

c. The child is physically deformed, which will interfere with or give an incorrect measurement. To be kind, you may want to measure such a child and make a note of the deformity on the questionnaire.

I. Recording Measurements and Being Careful

Record the measurements in pencil. If you make an error, completely erase the error and rewrite the correct numbers. Keep objects out of your hands and pencils out of your mouth, hair or breast pocket when you weigh and measure so that neither the child nor you will get hurt due to carelessness. When you are not using a pencil, place it in your equipment pack, pencil case or on the survey form. Make sure you do not have long fingernails. Remove interfering rings and watches before you weigh and measure. Do not smoke when you are in a household or when you weigh and measure.

J. Strive for Improvement

You can be an expert measurer if you strive for improvement and follow every step of every procedure the same way every time. The quality and speed of your measurements will improve with practice. You may be working with a partner to form a team. If so, you will be responsible for not only your own work, but also for the quality of work of your team.

You will be required to weigh and measure many children. Do not take these procedures for granted even though they may seem simple and repetitious. It is easy to make errors when you are not careful. Do not omit any steps. Concentrate on what you are doing.
II. Nutritional Status Measurement Summary Procedures

A. Child Height Summary Procedure (Illustration 1)*

1. **Measurer or Assistant:**
   Place the measuring board on a hard flat surface against a wall, table, tree, staircase, etc. Make sure the board is stable.

2. **Measurer or Assistant:**
   Ask the mother to remove the child’s shoes and unbraid any hair that would interfere with the height measurement. Ask her to walk the child to the board and to kneel in front of the child (if she is not the assistant).

3. **Assistant:**
   Place the questionnaire and pencil on the ground (Arrow 1). Kneel with both knees on the right side of the child (Arrow 2).

4. **Measurer:**
   Kneel on your right knee only, for maximum mobility, on the child’s left side (Arrow 3).

5. **Assistant:**
   Place the child’s feet flat and together in the centre of and against the back and base of the board. Place your right hand just above the child’s ankles on the shins (Arrow 4), your left hand on the child’s knees (Arrow 5) and push against the board. Make sure the child’s legs are straight and the heels and calves are against the board (Arrows 6 and 7). Tell the measurer when you have completed positioning the feet and legs.

6. **Measurer:**
   Tell the child to look straight ahead at the mother if she is in front of the child. Make sure the child’s line of sight is level with the ground (Arrow 8). Place your open left hand on the child’s chin. Gradually close your hand (Arrow 9). Do not cover the child’s mouth or ears.

   Make sure the shoulders are level (Arrow 10), the hands are at the child’s side (Arrow 11), and the head, shoulder blades and buttocks are against the board (Arrows 12, 13, and 14). With your right hand, lower the headpiece on top of the child’s head. Make sure you push through the child’s hair (Arrow 15).

7. **Measurer and Assistant:**
   Check the child’s position (Arrows 1-15). Repeat any steps as necessary.

8. **Measurer:**
   When the child’s position is correct, read and call out the measurement to the nearest 0.1 cm. Remove the headpiece from the child’s head, your left hand from the child’s chin and support the child during the recording.

9. **Assistant:**
   Immediately record the measurement and show it to the measurer.
   **NOTE:** If the assistant is untrained, the measurer records the height.

10. **Measurer:**
    Check the recorded measurement on the questionnaire for accuracy and legibility. Instruct the assistant to erase and correct any errors.

* If the assistant is untrained, e.g. the mother, then the measurer should help the assistant with the height procedure.
B. Child Length Summary Procedure (Illustration 2)*

1. **Measurer or Assistant:**
   Place the measuring board on a hard flat surface, i.e. ground, floor or steady table.

2. **Assistant:**
   Place the questionnaire and pencil on the ground, floor or table (Arrow 1). Kneel with both knees behind the base of the board, if it is on the ground or floor (Arrow 2).

3. **Measurer:**
   Kneel on the right side of the child so that you can hold the footpiece with your right hand (Arrow 3).

4. **Measurer and Assistant:**
   With the mother’s help, lie the child on the board by doing the following:
   - **Assistant:** Support the back of the child’s head with your hands and gradually lower the child onto the board.
   - **Measurer:** Support the child at the trunk of the body.

5. **Measurer or Assistant:**
   If she is not the assistant, ask the mother to kneel on the opposite side of the board facing the measurer to help keep the child calm.

6. **Assistant:**
   Cup your hands over the child’s ears (Arrow 4). With your arms comfortably straight (Arrow 5), place the child’s head against the base of the board so that the child is looking straight up. The child’s line of sight should be perpendicular to the ground (Arrow 6). Your head should be straight over the child’s head. Look directly into the child’s eyes.

7. **Measurer:**
   Make sure the child is lying flat and in the centre of the board (Arrows 7). Place your left hand on the child’s shins (above the ankles) or on the knees (Arrow 8). Press them firmly against the board. With your right hand, place the footpiece firmly against the child’s heels (Arrow 9).

8. **Measurer and Assistant:**
   Check the child’s position (Arrows 1-9). Repeat any steps as necessary.

9. **Measurer:**
   When the child’s position is correct, read and call out the measurement to the nearest 0.1 cm. Remove the footpiece, release your left hand from the child’s shins or knees and support the child during the recording.

10. **Assistant:**
   Immediately release the child’s head, record the measurement, and show it to the measurer.

**NOTE:** If the assistant is untrained, the measurer records the length on the questionnaire.
11. **Measurer:**
Check the recorded measurement on the questionnaire for accuracy and legibility.
Instruct the assistant to erase and correct any errors.

* If the assistant is untrained, e.g. the mother, then the measurer should help the assistant with the length procedure.
Illustration 2
Child Length Measurement

1. Questionnaire and pencil on clipboard on floor or ground
2. Assistant on knees
3. Measurer on knees
4. Hands cupped over ears; head against base of board
5. Arms comfortably straight
6. Line of sight perpendicular to base of board
7. Child flat on board
8. Hand on knees or shins; legs straight
9. Feet flat against footpiece
90°
C. Child Weight Summary Procedure (Illustration 3)*

1. **Measurer or Assistant:**
   Hang the scale from a tree branch, ceiling beam, tripod or pole held by two people. You may need a piece of rope to hang the scale at eye level. Ask the mother to undress the child.

2. **Measurer:**
   Attach a pair of the empty weighing pants, infant sling or basket to the hook of the scale and adjust the scale to zero, then remove from the scale.

3. **Measurer:**
   Have the mother hold the child. Put your arms through the leg holes of the pants (Arrow 1). Grasp the child’s feet and pull the legs through the leg holes (Arrow 2). Make certain the strap of the pants is in front of the child.

4. **Measurer:**
   Attach the strap of the pants to the hook of the scale. **DO NOT CARRY THE CHILD BY THE STRAP ONLY.** Gently lower the child and allow the child to hang freely (Arrow 3).

5. **Assistant:**
   Stand behind and to one side of the measurer ready to record the measurement. Have the questionnaire ready (Arrow 4).

6. **Measurer and Assistant:**
   Check the child’s position. Make sure the child is hanging freely and not touching anything. Repeat any steps as necessary.

7. **Measurer:**
   Hold the scale and read the weight to the nearest 0.1 kg, (Arrow 5). Call out the measurement when the child is still and the scale needle is stationary. Even children who are very active, which causes the needle to wobble greatly, will become still long enough to take a reading. **WAIT FOR THE NEEDLE TO STOP MOVING.**

8. **Assistant:**
   Immediately record the measurement and show it to the measurer.

9. **Measurer:**
   As the assistant records the measurement, hold the child in one arm and gently lift the child by the body. **DO NOT LIFT THE CHILD BY THE STRAP OF THE WEIGHING PANTS.** Release the strap from the hook of the scale with your free hand.

10. **Measurer:**
    Check the recorded measurement on the questionnaire for accuracy and legibility. Instruct the assistant to erase and correct any errors.

* If the assistant is untrained, e.g. the mother, then weight should be taken by one person only, the trained measurer, who should also record the measurement on the questionnaire.
Illustration 3
Child Weight

1. Put hands through leg holes
2. Grasp feet
3. Child hangs freely
4. Assistant with questionnaire
5. Measurer reads scale at eye level
D. Child Mid-Upper Arm Circumference Summary Procedure (MUAC)  
(Illustration 4)*

1. **Measurer:**  
   Keep your work at eye level. Sit down when possible. Very young children can be held by the mother during this procedure. Ask the mother to remove clothing that may cover the child’s left arm.

2. **Measurer:**  
   Calculate the midpoint of the child’s left upper arm by first locating the tip of the child’s shoulder (Arrows 1 and 2) with your fingertips. Bend the child’s elbow to make a right angle (Arrow 3). Place the tape at zero, which is indicated by two arrows, on the tip of the shoulder (Arrow 4) and pull the tape straight down past the tip of the elbow (Arrow 5). Read the number at the tip of the elbow to the nearest centimetre. Divide this number by two to estimate the midpoint. As an alternative, bend the tape up to the middle length to estimate the midpoint. A piece of string can also be used for this purpose. Either you or an assistant can mark the midpoint with a pen on the arm (Arrow 6).

3. **Measurer:**  
   Straighten the child’s arm and wrap the tape around the arm at the midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin (Arrow 7).

4. **Measurer and Assistant:**  
   Inspect the tension of the tape on the child’s arm. Make sure the tape has the proper tension (Arrow 7) and is not too tight or too loose (Arrows 8-9). Repeat any steps as necessary.

5. **Assistant:**  
   Have the questionnaire ready.

6. **Measurer:**  
   When the tape is in the correct position on the arm with the correct tension, read and call out the measurement to the nearest 0.1 cm. (Arrow 10).

7. **Assistant:**  
   Immediately record the measurement on the questionnaire and show it to the measurer.

8. **Measurer:**  
   While the assistant records the measurement, loosen the tape on the child’s arm.

9. **Measurer:**  
   Check the recorded measurement on the questionnaire for accuracy and legibility. Instruct the assistant to erase and correct any errors.

10. **Measurer:**  
    Remove the tape from the child’s arm.

* If the assistant is untrained, e.g. the mother, then arm circumference should be measured by one person only, the trained measurer, who should also record the measurement on the questionnaire.
Illustration 4
Child Mid-Upper Arm Circumference Measurement

1. Locate tip of shoulder
2. Tip of shoulder
3. Tip of elbow
4. Place tape at tip of shoulder
5. Pull tape past tip of bent elbow
6. Mark midpoint
7. Correct tape tension
8. Tape too tight
9. Tape too loose
10. Correct tape position for arm circumference

Arm Circumference "Insertion" Tape
0 cm.