

**GUYANA LIVING STANDARDS MEASUREMENT SURVEY  
ANTHROPOMETRIC TRAINING MANUAL**

**January 1993**

# The Guyana Living Standards Measurement Survey

## 1. OVERVIEW

### 1.1 Objectives of the Guyana Living Standards Measurement Survey (LSMS)

The primary objective of the project is to collect individual and household data which can be used to analyze relevant policy questions, particularly those relating to poverty, income distribution and the living standards of Guyanese households. The information gathered is intended to provide knowledge about the extent of poverty in the country, the impact of existing government and non-government agency benefits, and the appropriate design of future programs.

### 1.2 Methodology of the Survey

The LSMS will be implemented in conjunction with UNDP's Household Income and Expenditure Survey (HIES) and will draw data from one round (the third round) of HIES's 7000 household sample. Because each round represents a national sample, it is possible to administer the LSMS in one round only, covering approximately 1800 households in 616 enumeration districts. All households included in the HIES third round will also be included in the LSMS sample.

Once the HIES has been administered to a household, the interviewer will return to the household for a second visit to carry out the LSMS questionnaire. Following the completion of the LSMS, the anthropometrist team will visit those households with children under the age of five on a third visit to carry out the anthropometric section of the questionnaire.

### 1.3 Field Organization

LSMS data will be collected by the same field teams administering the HIES. Each anthropometric team will consist of two nursing students, who will coordinate closely with the supervisor and enumerator in scheduling the anthropometric visit and identifying households.

The role of the Supervisor will be to oversee, coordinate, monitor, and where necessary correct the work of the enumerators. The Enumerators will be responsible for collecting the data from the respondent households using the LSMS household questionnaire.

The Anthropometrist will be responsible for completing the anthropometric module, including measuring and weighing all children under five in the household. This role is crucial to the survey in that the quality of the data and ultimately of the studies and analysis based on the survey will be determined by the accuracy of the anthropometrists work.

### 1.4 Content and design of the Survey

The HIES survey is interested in measuring the characteristics and behavior of Guyanese households. The emphasis of the LSMS is specifically on individual behavior in the areas of Health, Education, Fertility, Migration, and Anthropometric. The majority of the questions are asked for each member of the household, with precoded answers provided just below the question. Code lists are kept short and simple to minimize errors.

## 2. ANTHROPOMETRIC

This section of the questionnaire collects information on the health and nutritional status of young children in the household. The collection and analysis of this data will make it possible to:

- (a) ascertain weight, height, age and sex relationships for the children under five and thus determine weight and growth curves by sex;
- (b) identify categories of children who may have nutritional deficiencies as indicated by their low weight in relation to their height and age.
- (c) study the effect of household and individual characteristics on the nutritional status of young children and identify determinants of malnutrition.

## 3. GENERAL INSTRUCTIONS FOR CONDUCTING THE ANTHROPOMETRIC SECTION

### 3.1 Introduction

In conducting the interview, the anthropometrist must carefully follow the instructions contained in this manual and on the questionnaire. The anthropometrist is responsible for reading the questions exactly as they appear in the questionnaire, and weighing and measuring all children under five in the household.

Anthropometrists will work in teams of two to facilitate weighing and measuring procedures. Upon arriving to the household, the enumerator should introduce the team, and then allow them to carry on with the questionnaire. The interview should be conducted in a quiet, comfortable place to ensure that the respondents and anthropometrists can concentrate. The respondent should be fully aware of the purpose of the visit based on prior explanation. If additional explanation is needed the anthropometrist should inform the respondent the following;

- \* The Guyana Bureau of Statistics, in collaboration with The UNDP and World Bank are conducting a survey of Guyanese families to have a better understanding of their present living conditions. The survey is thus very important for planners to know how to improve the people's living conditions. The data collected from this survey will be used as the basis for analyzing important social and economic policy issues.
- \* The community/village and the families who will be interviewed have been selected at random. Other neighboring communities/villages and households have been selected in the same way.
- \* The survey is not concerned in any way with taxes, and all the information recorded will be regarded as confidential and covered by the obligation of statistical secrecy.

### 3.2 Conduct of the Interviewer

The anthropometrists must carefully observe the following rules in carrying out the survey:

- \* She must be courteous towards everyone (the respondent and his family and friends, the supervisor, the other members of the team and anyone else involved). Her behavior can have an enormous influence on the opinions of people in the localities covered by the survey as to the value of the whole operation.
- \* She must avoid disturbing or upsetting anyone by his behavior.
- \* She must be properly dressed (in uniform), so that the respondent will be inclined to trust her, as a reliable and responsible person.
- \* She must arrive at the stated time, and never keep the respondent waiting.
- \* She must exercise patience and tact in conducting the interview, to avoid antagonizing the respondent or leading him to give answers that are not in conformity with the facts.

Suggest the following guidelines before you start the interview so that it proceed in a smooth and effective manner:

- \* It is very important that you answer as accurately as you can.
- \* Most of the questions I will ask will have a corresponding set of possible answers. I could read the list of choices for you, if necessary, to you help you pick the one that fits your situation most accurately. I prefer that you answer the questions however you like and I will choose the answer in the list of choices that most accurately reflects your answer.
- \* Take your time in giving answers particularly for questions requiring a recall period of 12 months. Precision is more important to us than speed in finishing the questionnaire.
- \* Consult records if necessary or whenever the questionnaire requires you to do so, e.g, children's birth certificates, immunization cards, etc.
- \* Do not hesitate to ask me to repeat a question or ask for clarification if the question is not clear or needs further explanation.
- \* If at any time you wish to stop the interview because you have other commitments or you become tired, please let me know and we can schedule another time to finish. However, it is best to try to find a time when you can complete your part of the interview in one sitting.

### 3.3 Tempo of the interview

You must maintain the tempo of the interview; in particular, avoid long discussions of the questions with the respondents. If you are receiving irrelevant or complicated answers, do not break in too suddenly, but listen to what the respondent is saying and then lead her back to the original question. Remember that it is you who is running the interview and that you must be in charge of the situation at all times.

### 3.4 Objectivity of the Interviewer

It is extremely important that you remain absolutely NEUTRAL about the subject of the interview. Most people are naturally polite, particularly with visitors, and they tend to give answers and adopt attitudes that they think will please the visitor. You must not show any surprise, approval or disapproval about the answers given by the respondent, and you must not tell him what you think about these things yourself. If he asks you for your opinion, wait until the end of the interview to discuss the matter with him.

You must also avoid any preconceived idea about the respondent's ability to answer certain questions or about the kind of answer she is likely to give. Do not communicate judgements on answers given by the respondents.

### 3.5 Asking the questions

You must always read the questions just as they are written in the questionnaire. Questions should be asked and instructions given exactly the way they are written in the questionnaire with no variation or change in wording. Any slight changes in asking questions have been shown to significantly affect the way questions are answered by the respondent.

After reading a question once in a clear and comprehensible manner, you should await the reply. If the respondent does not answer in a reasonable time, he has probably 1) not heard the question; or 2) not understood the question; or 3) does not know the answer. In any case, if there is no answer, you must repeat the question. If there is still no reply, you must ask whether the question has been understood. If the respondent is still reluctant to answer reiterate the confidentiality of information to be provided.

### 3.6 Probing and Respondent Recall

If a respondent gives an incomplete or unsatisfactory answer, you must probe by asking a follow-up question to elicit a better response. Probing should be done in a nondirective manner by subtly pursuing the question at hand without pushing the respondent to select an answer over another. Asking follow-up questions such as "What exactly do you mean?", "Anything else?"; "Tell me more about..." or simply repeating the question could be useful in probing.

### 3.7 Private Nature of the Interview

All the data collected are strictly confidential. Any divulgement of particular data is forbidden by law. This rule is all the more important in that it is the foundation of all statistical work.

### 3.8 After the Interview

Before leaving, you must thank all the members of the household who took part in the interview and fix a date for any subsequent visits that may be necessary (such as the anthropometric visit). When a date has been agreed you should write it on the Cover page.

### 3.9 Checking the Completed Questionnaires

After finishing each interview, you must verify that all the questions in the anthropometric section have been filled out correctly and legibly. You must make sure that you have recorded the required information for all the children under five. This must be done immediately after the interview, before you hand in the questionnaire to your supervisor, and, most important, before leaving the Enumeration district. The Supervisor will review the completed questionnaire using the Questionnaire verification form. He will inform you if there are any questions which have been miscoded, if skip patterns were not followed correctly, if entries are inaccurate, and which questions should be reasked.

## Part II: THE QUESTIONNAIRE

### 1. GENERAL INSTRUCTIONS FOR FILLING IN THE QUESTIONNAIRE

The anthropometric module can be found on the last two pages of the LSMS questionnaire preceding the household Roster page. There are several conventions or codes used in the questionnaire to assist the interviewer. These are as follows;

#### A. Typographical Conventions

Certain distinctions are made in the questionnaire by using different type fonts, such as:

- 1) text in upper case are instructions to the interviewer and should not be read out to the respondent
- 2) text in lower case are the questions or introductions to sections which should be read to the respondents.
- 3) text that is in upper case and enclosed in brackets (i.e. ...[NAME]...) alerts the interviewer to supply the appropriate word when reading out the question to the respondent.

#### B. Skip Patterns

Most of the time, you will have to formulate the questions in the same order they appear in the questionnaire. That is, Question 5 should follow Question 4, etc.

In some cases, however, after a reply you will find an arrow (>) followed by a number; that number indicates which question should follow. This is referred to as the skip pattern.

#### C. Coding Scheme

The questionnaire is largely pre-coded to minimize coding errors. Codes are provided at the back of each questionnaire and on a separate laminated page given to each interviewer.

#### D. Layout

The household roster page has each individual in the household listed on the fold out section of the page. Determine the i.d. code for each child under the age of five who will be included in the anthropometric section.

### 2. FILLING IN THE QUESTIONNAIRE

The following general guidelines should assist the anthropometrist in filling in the questionnaire;

- a) The questionnaire should be filled in during the interview. You must not record the answers on scraps of paper and transfer them to the questionnaire later, nor should you count on your memory for filling in the answers once you have left the household.
- b) Although you may correct minor errors due to your having written down the answers badly, you must never make any other changes in the completed questionnaire without asking the respondent the questions again. Nor may you copy the information you have collected onto a new questionnaire.
- c) When you need to write the name of a person, place or thing, always write very legibly in capital letters. This instruction is particularly important for the household roster, because the names have to be put into the computer.
- d) The questionnaire is pre-coded throughout. Codes translate the respondent's answers into numbers. You must write the code corresponding to the answer given by the respondent in box or column provided. If the answer is an amount or a figure, write the answer in a box. Here are two examples:
- e) Never leave a question blank that requires a response according to the questionnaire's skip sequences and never write a response for a question that is not applicable and therefore should be blank. Failure to provide information that is required or filling in unnecessary information are errors and will be noted as such in the data entry program.
- f) Do your best to avoid the reply "I don't know" by helping the respondent to consider his answer. In this manual there are many examples of questions that can be asked to help the respondent recall the information required. Nevertheless, it does happen that, even with the help of the interviewer, the respondent cannot give an answer. In that case, write "DK" in capital letters in the box reserved for the answer. There should be few such cases. All DKs will be reviewed by your supervisor.
- g) The following points are important to ensuring accurate data entry;
1. Write legibly in pencil, without crossing out or overwriting. If you make a mistake in recording, erase it completely and write the correct entry.
  2. Write in capital letters and use arabic numerals. For instance, you should write "1", not "I", "4" not "IV".
  3. Never go beyond the space allotted for a question, even when the next space is not used. If the space provided is not enough, make a note of it and advise your supervisor about the problem.
  4. For questions to which the reply is a quantity or amount, write only the numeral in the appropriate box, without the unit of measurement. For example,  
if the reply is:

\* "10 pounds", write "10" not "10 lbs."

### 3. THE ANTHROPOMETRIC QUESTIONS

The anthropometrist should fill in the appropriate responses in the right hand box with the name and date on the Cover page and then proceed to the anthropometric section.

- 1) Determine the exact date of the child's birth. You should ask to see a birth registration, baptismal record, clinic card or other certificate of birth. If not available, ask to see an Immunization Card or any other paper or document with a birthdate. From the date, calculate the child's age and confirm it with the response in question 3. Determining the correct age of the individual is very critical in assessing the health and nutritional status of children.
- 2) Write in the weight of the child at birth. Again, it may be necessary to verify this information with a birth record or certificate.
- 3) Write in the child's completed age in years and months, or months only if less than one year. Never round off the age to the nearest year. For example, if a child is in fact 3 years old and 7 months, it should not be reported as 3 years old or 4 years old. When rounding months, always round down. If the child is 3 years, 7 months and 28 days, write the completed age; 3 years, 7 months.
- 4) If the child was measured, write code 1 for yes, and skip to question 6. If no, write in code 2 and follow on to question 5.
- 5) Write in the code corresponding to the reason the child was not measured and skip to question 9.
- 6-7) For instructions on how to weigh and measure children, see below.
- 10-14) Record the immunization history of the child. This may need to be verified with an immunization record.
- 15) Determine if the child is being breastfed exclusively. If the child is being breastfed and drinking formula, write the code for no and continue with the sequence. If yes, write the code for yes and skip to question 19.
- 16) Write the age in months in which the child was weaned onto solid foods.
- 19) Determine if the child takes any kind of vitamin supplements including tablets, liquid or another form.

### 4. HOW TO WEIGH AND MEASURE CHILDREN

Please see attached.

**PART III**

**GUYANA LIVING STANDARDS MEASUREMENT SURVEY**

**ANTHROPOMETRIC TRAINING MANUAL**

**HOW TO WEIGH AND MEASURE CHILDREN**

**January 1993**

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**THE GUYANA LIVING STANDARDS MEASUREMENT SURVEY  
ANTHROPOMETRIC TRAINING MANUAL**

**1.0 INTRODUCTION**

As part of the Guyana Living Standards Measurement Survey (GLSMS), children less than five years old of all selected households will be weighed and measured. Weighing and measuring, i.e., anthropometry, will be done by nurses.

This manual presents the procedures for the anthropometrist to follow. Keep this manual with you during training and also during data collection so that you can refer to it.

**2.0 PERSONNEL AND DUTIES**

There will be 7 two-person teams of nursing students who will take the anthropometric measurements on the GLSMS. A total of 34 nurses will be trained in anthropometry. There is a total of 60 other GLSMS enumerators and supervisors.

Unless otherwise instructed, the anthropometrists will weigh and measure children only from households where the enumerators collect data. The nurses will work independently from the enumerators.

**3.0 ANTHROPOMETRIC MEASUREMENTS, MEASURING INSTRUMENTS AND EQUIPMENT**

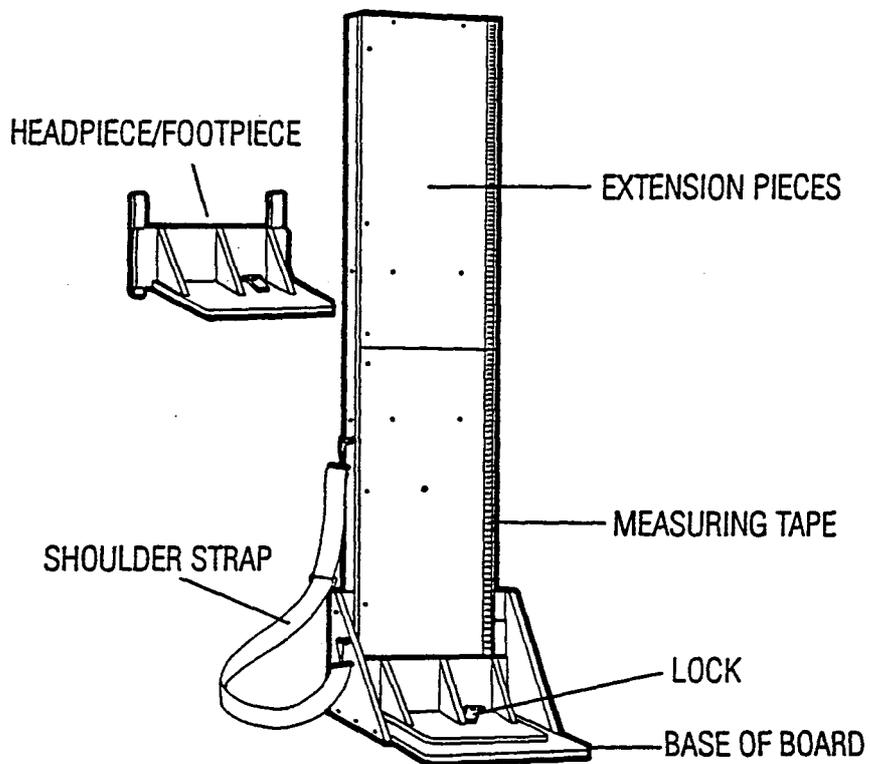
You will be responsible for the care of the measuring instruments and equipment assigned to you. Report any loss or damage or any instrument that is not working properly.

**3.1 The Height Measuring Board**

A wooden measuring board will be used to measure the height of all people. It is graduated in 0.1 cm increments. It is used in an upright position for measuring the height of children two (2) years and older. It is used in a horizontal position (e.g., on the ground or floor) for measuring the recumbent length of children lying down who are less than two (2) years of age. There are five pieces to the measuring board:

- a. The base of the board, attached to a vertical section
- b. The sliding head/footpiece, stored in the base of the board
- c. Two extension pieces for measuring taller people
- d. An adjustable shoulder strap for transporting the board

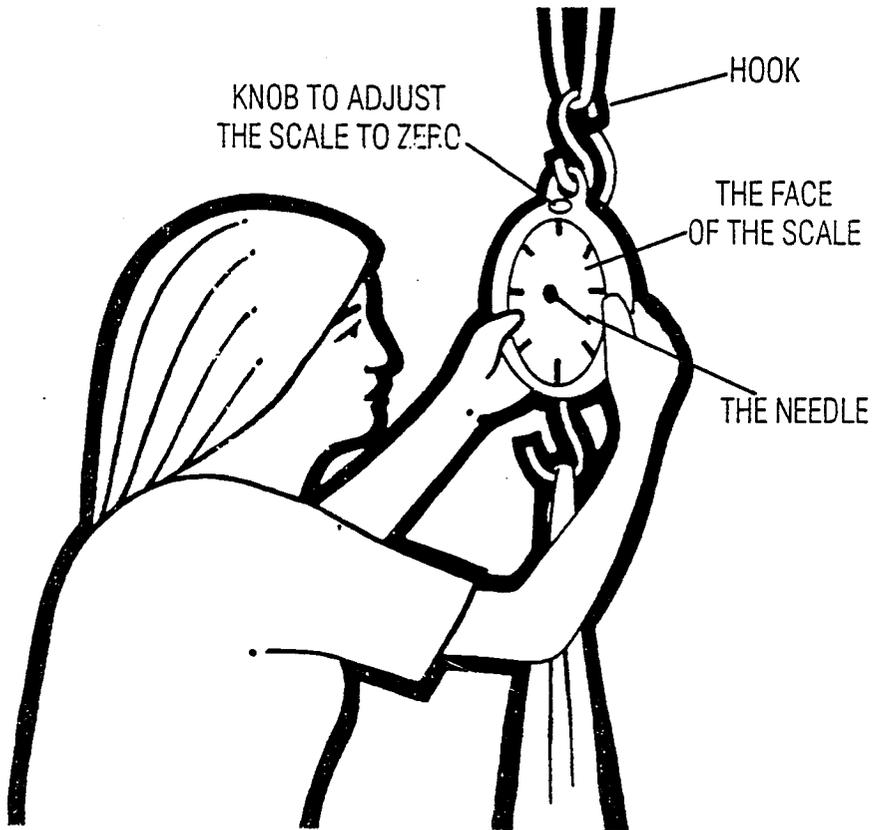
### The Height Measuring Board



### 3.2 The Hanging Scale

A hanging scale will be used to take the weight of preschool-age children (i.e., children less than five years). It is graduated in 0.1 kg increments and has a 25 kg capacity. Washable pants with a strap are included to place children greater than six months of age to weigh and a sling to lay infants less than six months. Make sure to report any rips in the fabric of the pants or sling so they can be repaired or replaced.

The Hanging Scale



### 3.3 Other Equipment and Care of the Instruments

In addition to the measuring instruments, you will be given a piece of rope to hang the hanging scale from a tree or beam and a pole to hang the scale if necessary. Also, there will be extra pants and slings for this scale. Additional equipment includes pens, pencils, erasers, pencil sharpeners, bags to hold the equipment during transport, cloths to clean the instruments, etc. (See Annex 4, Anthropometric Measuring Instrument and Equipment Checklist.)

Although the measuring instruments are durable and portable, you must be careful when using them and when you transport them. You must maintain them on a daily basis. Wipe the measuring board with a clean cloth (a damp cloth can be used followed by drying with a clean dry cloth). Wipe the scales regularly.

Inform your supervisor immediately if there are any problems with the measuring instruments or equipment. Make sure that you have all your instruments and equipment, questionnaires, etc. before you go to a household. Refer to the Anthropometric Measuring Instrument and Equipment Checklist that will be given to you.

## 4.0 MEASUREMENT PROCEDURES

### 4.1 Procedures and Precautions Before Measuring

#### a. Two People Required for Child Standing Height and Child Recumbent Length

Two people are required to measure a child's standing height and recumbent length. The anthropometrist holds the child and takes the measurements. The assistant helps hold the child's knees and feet during height and head during length.

#### b. Measuring Instrument Placement

Begin to observe possible places where the board can be positioned and the scale hung and floor scale placed as soon as you walk towards a household. Be selective about where you place the instruments. It is best to weigh and measure outdoors during daylight hours. If it is cold or raining and you must work indoors, make sure to have adequate light.

#### c. Age Assessment

Before you begin, determine ages of the people you are about to weigh and measure. If a child is less than two years of age, measure length, lying down. If a child is two years of age or older, measure height. If accurate age is not possible to obtain, measure length if a child is less than 85 cm. Measure height if the child is equal to or greater than 85 cm.

**d. When to Weigh and Measure**

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

**e. Weigh and Measure One Person at a Time**

Make sure that you weigh and measure one child at a time completely before beginning the weighing and measuring of the next child. DO NOT, for example, take the height of all children in a household followed by the weight of all children since this can cause errors.

**f. Controlling Children**

When you weigh and measure children, you must control them. 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 sling, you must hold and control the child so the child will not trip or fall. Never leave a child alone with a measuring instrument or 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 its weight.

**g. 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 a child 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 the mother refuses, the child is too sick or too distressed or if the child is physically deformed which may 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.

**h. 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 questionnaire. 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.

**i. Strive for Improvement**

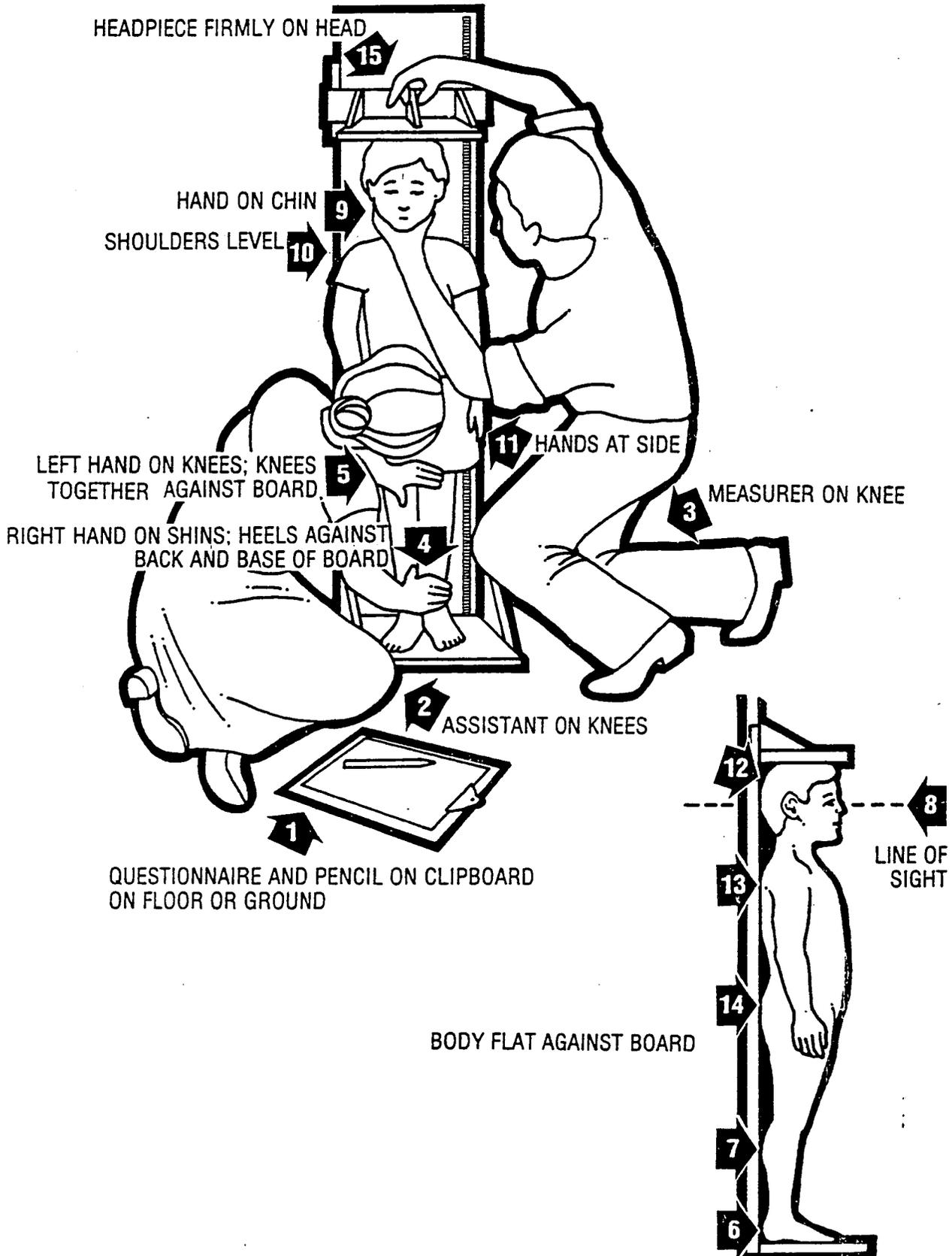
You can be an expert anthropometrist if you strive for improvement and follow every step of every procedure the same way every time. The quality and speed of your measurements will improve with practice. You may be working with a partner to form a team. If so, you will be responsible for not only your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

#### 4.2 STANDING HEIGHT FOR CHILDREN TWO YEARS AND OLDER

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 unbraided 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.

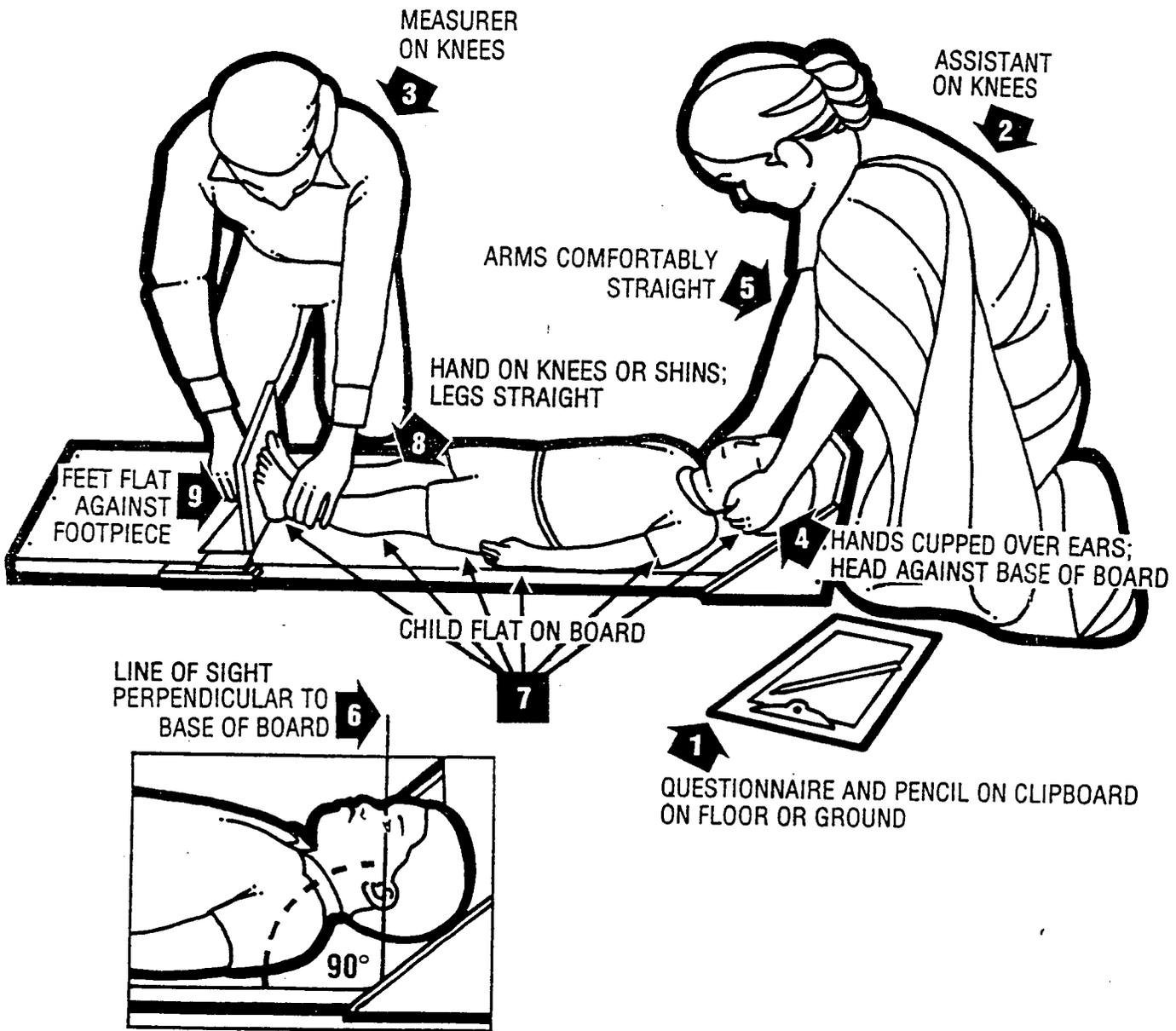
# Child Height Measurement



#### 4.3 RECUMBENT LENGTH OF CHILDREN LESS THAN TWO YEARS OLD

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, lay 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 on 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.

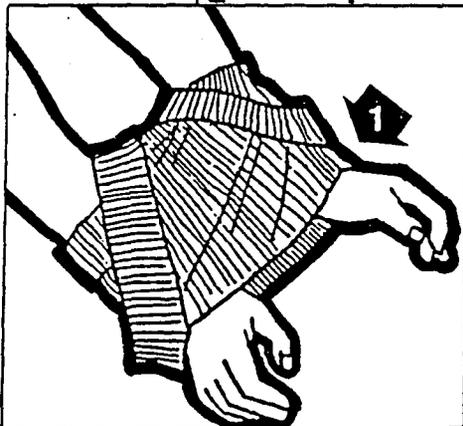
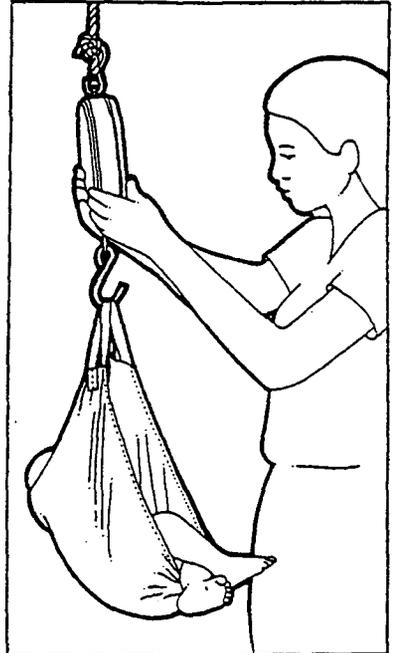
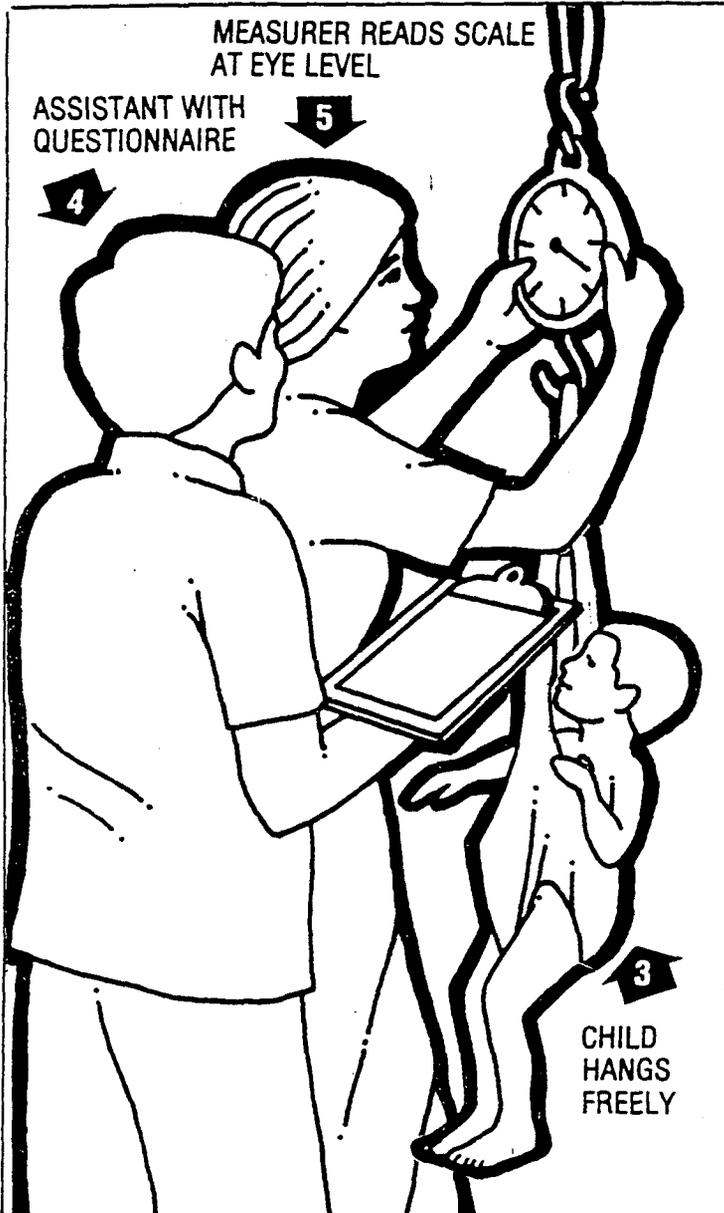
# Child Length Measurement



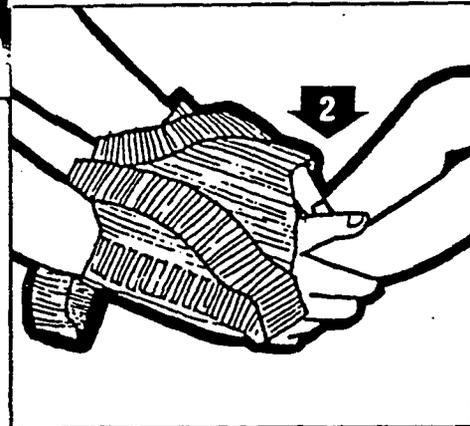
#### 4.4 WEIGHT OF CHILDREN USING A HANGING SPRING DIAL SCALE

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.

# CHILD WEIGHT



PUT HANDS THROUGH LEG HOLES



GRASP FEET

5.0 QUALITY CONTROL

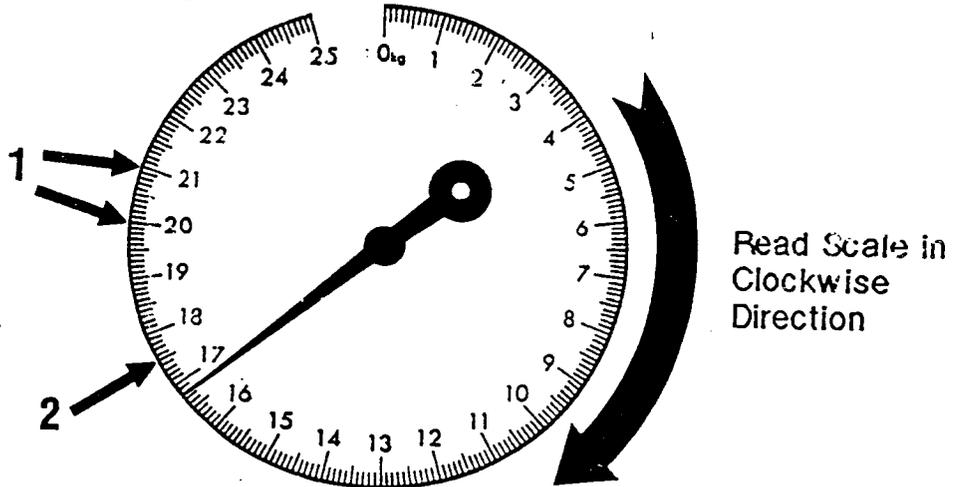
5.1 Reading Measurements

a. The reading area of the tape on the measuring board is in centimetres (CM) that are numbered (see illustration below). Each cm is divided into ten gradations, i.e., small vertical lines, that are each 0.1 cm (or 1 mm). The line at five mm is slightly longer (Arrow 1). Large numbers appear at every ten cm (Arrow 2).

Section of Measuring Board Tape

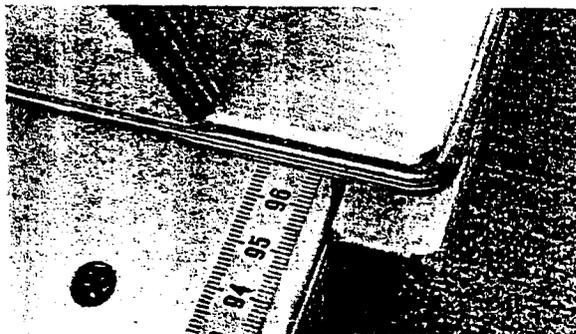


b. Similarly, there are numbers on the hanging scale at each kilogram (kg; see illustration below, Arrows 1), small lines at each 0.1 kg. and a slightly longer line at each 0.5 kg line (Arrow 2).



c. Be careful to read the scale on the measuring equipment properly. The tape on the measuring board should be read in an upward direction for height and left to right for length; the hanging scale clockwise. Do not read the numbers in a "backward" direction. For example, the reading of the tape on the measuring board below is 96.7 cm, NOT 97.3 cm. The weight reading of the scale above is 16.8 kg, NOT 17.2 kg.

Correct Reading is  
96.7 cm, NOT 97.3 cm.

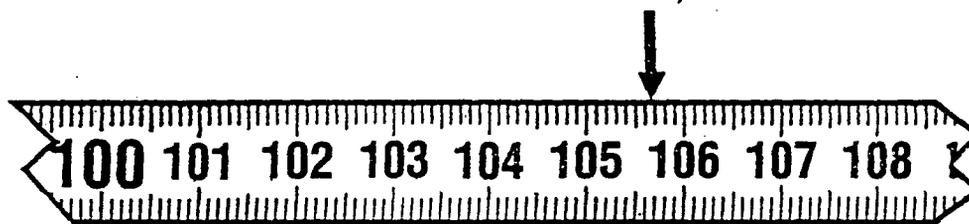


d. Make sure to count the number of visible lines, i.e., mm when you read the tape. Note the reading of the tape on the height measuring board in the illustration on page 13 which is 96.7 cm. The head-piece falls almost directly on the seventh line. Since it can be seen, it is counted towards the measurement.

e. If the dial of the hanging scale falls directly on a line, count that towards the measurement. The dial of the scale in the illustration on page 13 is directly on the eighth line after 16 kg. Therefore, the reading is 16.8 kg.

f. If the movable headpiece or footpiece of the height measuring board or the needle (pointer) of the scale fall between two lines, record the measurement of the LOWER number. For example, the reading of the tape below is 105.6 cm., since the arrow falls between the 6th and 7th lines after 105.

Arrow Between Lines 105.6 and 105.7 cm.  
Record the Lower Number, 105.6



### 5.2 Recording Measurements

a. Place numbers in appropriate boxes for the measurements. Be careful to make clear and neat numbers the same way every time. The following is a suggested way of writing numbers, although the final decisions about how the numbers will be written will be made during training:

1 2 3 4 5 6 7 8 9 0

b. Notes:

1 : A single vertical line. Do not slant the 1 ( / ). Do not put a 'hat' or base on the 1 ( 1 , 1 ).

2, 3 : Make 2 and 3 with no loops ( 2 2 3 3 ).

4 : Make open 4's. Closed 4's can look like 9's ( 4 ).

5 : Be careful not to connect the 5 which can look like a 6 ( 5 ).

6 : Be careful with the loop of the 6 which can look like a zero ( 0 ).

7 : Cross the 7. This way it will not look like a 1 ( 1 : 1 or 7? ).

8 : Make with two separate loops. 'Figure-eight' 8's can look like 0 ( 0 ). Be careful not to separate the two loops ( 8 ).

9 : Make sure to close the loop of the 9 which could look like a 4 ( 9 : a 9 or a 4? ).

0 : Put a diagonal line through zeros for easy identification. Zeros can look like the number 6 ( 6 : a 0 or 6? ).

### 5.3 Reading and Recording Verification Systems

#### a. System When Two People Measure a Child

When a team of two people measures height or length, one team member, the measurer, reads the measurement, while the other, the assistant, records the measurement on the questionnaire. One of the greatest sources of measurement errors takes place during the reading and recording of a measurement. The following dialogue illustrates a reading and recording verification system that should decrease errors.

SITUATION: A child's height has been measured by a team, the measurer and assistant.

1. Measurer calls out the measurement:  
    *"Ninety-four point two" (centimetres).\**
2. Assistant hears and repeats: *"Ninety-four point two"*
3. Measurer hears and acknowledges: *"Okay"*
4. Assistant hears acknowledgement and responds: *"Okay"*
5. Assistant now records the height measurement '94.2' in the appropriate boxes on the questionnaire.
6. Assistant shows the questionnaire to the measurer.
7. Measurer checks to see if the assistant wrote down the correct measurement (94.2) in the correct place on the questionnaire.

#### b. System When One Person Measures a Child

When one person measures a child and records the measurement, he/she should repeat the measurement several times out loud from the time the measurement is made to the time it is recorded.

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\*94.2 should be read as "Ninety-four point two" not "Nine four point two". As another example, 112.3 should be read as, "One hundred twelve point three", not "One one two point three". Make certain you read zeros. For example, 84.0 should be read as, "Eighty-four point zero", not just "Eighty-four". The words "centimeters" and "kilograms" should not be read aloud.



Assistant  
Repeats  
Measurement

Illustration 118  
Measurer  
Calls Out  
Measurement



Assistant  
Records  
Measurement

Illustration 119  
Measurer  
Supports  
Child



Assistant  
Shows  
Measurement  
to Measurer

Illustration 120  
Measurer  
Checks  
Measurement

ANNEX B  
DEFINITION OF TERMS

1. **Anthropometry:** The technique that deals with the measurement of the size, weight and proportions of the human body. The anthropometric measurements that are used in this survey are standing height\*, recumbent length and weight.
  2. **Height/Stature:** Distance from the crown of the head to the bottom of the feet (heels) while the child is measured standing (for children two years of age or older).
  3. **Length:\*** Distance from the crown of the head to the bottom of the feet (heels) while the child is measured supine (i.e., lying on the back for children less than two years of age).
  4. **Weight:** Measurement of a child's total body mass undressed.
  5. **Height Measuring Board (Stadiometer):** A measuring board that can be used to measure either standing height or recumbent length, graduated in 0.1 cm.
  6. **Headpiece/Footpiece:** The part of the measuring board that moves and rests on the child's head for height, and against the child's feet for length.
  7. **Hanging Scale:** A portable, lightweight, durable spring scale that can be hung from a tree, ceiling beam or pole, graduated in 0.1 kg.
  8. **Weighing Pants:** The pants used to hold children one year or older during the weight measurement procedure.
  9. **Infant Sling:** A sling in which infants; i.e., children less than one year of age, are placed to take weight. The sling can be used for older children who cannot hold their heads up well.
  10. **Standardization Test:** A test to evaluate competency in anthropometric measurement.
  11. **Frankfort Plane:** The line from the hole in the ear to the bottom of the "orbit", i.e., the bone of the eye. The Frankfort Plane indicates the direction of the line of sight and the position of the child's head during standing height and recumbent length measurement procedures.
  12. **Recumbent:** Lying down, on either the front or back of the body.
  13. **Supine:** Lying down on the back of the body.
  14. **Measurer:** A trained enumerator who measures the height and weight of children.
  15. **Assistant:** An enumerator who assists the measurer by helping to hold the child in place during the measurement procedures and records the measurements on the questionnaire.
- \*The strict definition of "height" includes both stature (standing height) and recumbent length (measured lying down). The term "height" is often used to refer to standing height only, while the term "length" is often used to refer to recumbent length only.

ANNEX C  
ANTHROPOMETRIC MEASURING INSTRUMENT AND EQUIPMENT CHECKLIST

<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	Infant/Child Height Measuring Board
1	Infant/Child Hanging Spring Dial Scale with 4 pants and 2 infant slings
1	Piece of Rope in Loop for Child Hanging Scale
1	Pole for hanging scale
1	Equipment bag
	Pencils, pens, eraser and sharpener, pencil case
	Cloth to wipe equipment; cloths to kneel on for recumbent length

The Guyana Living Standards Measurement Survey  
Birthdate-to-Month Conversion Table  
Instructions for Use

The "Birthdate-to-Month Conversion Table" is a quick method for converting a child's birthdate to its age in months (i.e., completed months). The following is an example of how the table should be used:

1. Locate the birthdate of the child. For example, a child was born in June 1989.
2. Locate the month the child is being visited (i.e., weighed and measured) by the survey team (see column labeled "SURVEY DATE"). For example, the survey is being conducted in February 1993.
3. Identify the number that intersects the birthdate of June 1989 and the survey date of February 1993. The child is 44 months old. See below.

		SURVEY DATE		
		Jan	Feb	Mar
		1993		
	Jan	48	49	50
	Feb	47	48	49
	Mar	46	47	48
	Apr	45	46	47
B I R T H D A T E	1 May	44	45	46
	9 Jun	43	44	45
	8 Jul	42	43	44
	9 Aug	41	42	43
	Sep	40	41	42
	Oct	39	40	41
	Nov	38	39	40
	Dec	37	38	39



**THE GUYANA LIVING STANDARDS MEASUREMENT SURVEY  
SUPERVISOR ANTHROPOMETRIC QUALITATIVE CHECKLIST**

**INSTRUCTIONS: THIS FORM TO BE COMPLETED BY A SUPERVISOR FOR A HOUSEHOLD. PLACE AN "X" IN THE APPROPRIATE BOX.**

1.0 PREPARATION	YES	NO	DID NOT OBSERVE
1.1 Did the measurer check his/her measuring instruments and equipment (e.g., measuring board, scale, weighing pants, sling, etc.) before proceeding to a household?			
1.2 Did you, the supervisor, introduce the measurers to the members of the household where a child/children were weighed and measured?			
1.3 Did the measurer verify the age of the child?			
COMMENTS:			
2.0 SETTING UP THE MEASURING INSTRUMENTS AND EQUIPMENT	YES	NO	DID NOT OBSERVE
<b>2.1 MEASURING BOARD</b>			
a. Did the measurer place the board on the ground or floor in a secure place with adequate room to work?			
b. Did the measurer remove the shoulder strap and place it in the equipment storage bag?			
c. Did the measurer place the sliding head/foot-piece in the correct position on the board before the length measurement, and on the ground or floor for the standing height measurement?			
d. Was the measurer careful when handling the board?			
<b>2.2 HANGING SPRING DIAL SCALE</b>			
a. Did the measurer attach the hanging scale to something strong and solid?			
b. Did the measurer attach the scale at eye level?			
c. Did the measurer check the pants and sling before use?			
d. Did the measurer adjust the scale to zero before weight was taken?			
e. Did the measurer attach the scale so that the child being weighed hangs freely, without touching anything (e.g., walls, furniture, people)?			
COMMENTS:			

\*From Shorr, I.J., "Anthropometry as Part of Household Surveys, "Living Standards Measurement Surveys, The World Bank, Washington, D.C., 1993.

SUPERVISOR ANTHROPOMETRIC QUALITATIVE CHECKLIST, cont'd

3.0 GENERAL PROCEDURES	YES	NO	DID NOT OBSERVE
3.1 Did the measurer always have physical contact with children when in the weighing pants or on a measuring board?			
3.2 Did the measurer complete standing height or recumbent length first before weight on each child?			
3.3 Did the measurer complete all the measurements on one child before beginning the measurements on the next child?			
3.4 Did the measurer store his/her pen/pencil properly when not in use?			
3.5 Did the supervisor make arrangements for another appointment (i.e., to re-visit a household) to weigh and measure people who were not at home or could not be weighed and measured during the first visit? Write "NA" if Not Applicable in "Yes" column.			
COMMENTS:			
4.0 MEASUREMENT TECHNIQUES	YES	NO	DID NOT OBSERVE
4.1 RECUMBENT LENGTH			
a. Were children less than two years of age or those that cannot stand up well measured for recumbent length (i.e., lying down)?			
b. Were shoes, sandals, socks, etc., removed before the measurement?			
c. Were interfering hairstyles unbraided, hats, hair ornaments, rubber bands, etc. removed before the measurement? Write "NA" if Not Applicable in "Yes" column.			
d. Which of the team members was the assistant for standing height and recumbent length (e.g. Print "Interviewer" or "Supervisor" below)? ASSISTANT: _____			
e. Did the assistant hold the child's head properly?			
f. Did the measurer push down on the child's knees so the child is flat and in the centre of the board?			
g. Were the child's feet in the correct position (i.e., feet flat and heels against the footpiece)?			
h. Was the position of the measurer correct (i.e., directly in front of the sliding footpiece)?			

cont'd

SUPERVISOR ANTHROPOMETRIC QUALITATIVE CHECKLIST, cont'd

RECUMBENT LENGTH, cont'd	YES	NO	DID NOT OBSERVE
j. Did the Measurer and Assistant follow the Reading and Recording System (i.e., call out the measurement and record immediately on the questionnaire)?			
COMMENTS:			
4.2 STANDING HEIGHT	YES	NO	DID NOT OBSERVE
a. Were people two years or older measured for standing height?			
b. Were shoes, sandals, socks, etc., removed before the measurement?			
c. Were interfering hairstyles unbraided, hats, hair ornaments, rubber bands, etc. removed before the measurement? Write "NA" if Not Applicable in "Yes" column.			
d. Which of the team members was the assistant for standing height and recumbent length (e.g. Print "Interviewer" or "Supervisor" below)? ASSISTANT: _____			
e. Did the assistant hold the child's feet and knees properly (i.e., feet flat, heels against the base and back of the board and knees flat against the back of the board)?			
f. Did the measurer hold the child's head in the proper position?			
g. Did the measurer place the headpiece flat on the child's head, pushing through the hair if necessary?			
h. Was the position of the measurer correct (i.e., on the left side of the child)?			
i. Was the child flat against the board?			
j. Were the child's shoulders level?			
k. Did the Measurer and Assistant follow the Reading and Recording System (i.e., call out the measurement and record immediately on the questionnaire)?			
COMMENTS:			

SUPERVISOR ANTHROPOMETRIC QUALITATIVE CHECKLIST, cont'd

4.3 WEIGHT	YES	NO	DID NOT OBSERVE
a. Were all clothes removed except light undergarments?			
b. Did the measurer carry the child by the body when the child was in the pants/sling and <u>not</u> by the straps?			
c. Was the child hanging freely and not touching anything during the actual measurement?			
d. Did the measurer have physical contact with the child at all times while the child was in the weighing pants/sling, except during the actual measurement when the child was hanging freely?			
e. Did the measurer wait for the scale needle to stop before taking the reading?			
f. Did the measurer read the scale at eye level?			
g. Did the measurer follow the Reading and Recording system (i.e., call out the measurement and record immediately on the questionnaire)?			
COMMENTS:			
5.0 END OF MEASUREMENT SESSION	YES	NO	DID NOT OBSERVE
5.1 Did the measurer put the board, scale, other instruments and equipment away properly?			
5.2 Did the measurer check the recorded measurements before leaving the household?			
5.3 Did the measurer thank household members?			
COMMENTS:			