

**WEIGHT****TABLE OF CONTENTS**

<b>1. Background and rationale.....</b>	<b>2</b>
<b>2. Equipment and supplies .....</b>	<b>2</b>
<b>2.1 Maintenance.....</b>	<b>2</b>
<b>2.2 Calibration.....</b>	<b>2</b>
<b>3. Safety issues and exclusions .....</b>	<b>3</b>
<b>4. Participant and exam room preparation.....</b>	<b>3</b>
<b>5. Detailed measurement procedures.....</b>	<b>4</b>
<b>6. Procedures for performing the measurement at home .....</b>	<b>4</b>
<b>7. Alert values/follow-up/reporting to participants .....</b>	<b>4</b>
<b>8. Quality assurance .....</b>	<b>5</b>
<b>8.1 Training requirements .....</b>	<b>5</b>
<b>8.2 Certification requirements .....</b>	<b>5</b>
<b>8.3 Quality assurance checklist.....</b>	<b>6</b>
<b>9. Reference.....</b>	<b>6</b>
<b>APPENDIX 1 Weight Change Alert Letter for Physician.....</b>	<b>7</b>

## WEIGHT

### 1. Background and rationale

Weight is measured in kilograms using a standard balance beam scale. Body weight and body mass index (a mathematical function of weight and height) are important determinants of body composition and will be used to address the following research questions: 1) How does weight, independent of change in lean mass, affect the risk of disability in old age? 2) To what degree is weight loss associated with a decline in physical function? 3) To what extent is body mass index (weight/stature<sup>2</sup>) a reasonable proxy for total body fatness in the elderly? 4) What is the impact of specific health conditions on weight? 5) Does weight increase, decrease, or have no substantial impact on mortality risk following an acute health event?

### 2. Equipment and supplies

- Standard balance beam scale that can be read from front and back.

#### 2.1 Maintenance

- When not in use, rest the counterweight (larger weight) in the far right position.
- The top weight should rest in the left or zero position.
- The counterweight should always be lifted carefully before it is moved across the beam. This prevents wear on the notches, which could lead to erroneous readings.
- Keep the scale on a level surface and move it as little as possible.

#### 2.2 Calibration

At the beginning of the study, and then yearly, the scale calibration should be checked by a local Department of Weights and Measures. If this is not possible, inform the Health ABC Coordinating Center.

Scale calibration should be checked monthly against known weights. Each center should have a 50 kg weight (Alternatively: two 25 kg weights or two 50 lb weights) for this purpose. (If these are not certified calibration weights, e.g., body building weights, their exact weight should be determined by the local Department of Weights and Measures.)

- Put both the top and bottom counterweights in the zero position. With no weight on the platform, the beam should “float.” Then put the known weights on the scale, and adjust the counterweights until the beam “floats.”
- If the beam does not “float” at zero with no weight on the platform, or if the measurement of the known weight is off by more than  $\pm 1$  kg, the scale may need to be repaired or replaced.

Perform calibration check for linearity once per month. Linearity is checked by weighing a volunteer and recording the weight. With the person still standing on the scale, add 5 kg (10 lb [4.5 kg]) using the test weight; then add 10 kg (25 lb [11.4 kg]); 15 kg (35 lb [15.9 kg]); and finally 20 kg (50 lb [22.7 kg]). The scale should reflect the volunteer’s weight plus the added weight within  $\pm 0.2$  kg. Record calibration measurements on the calibration form and retain in your records. Carry out the procedure on persons of different weights during the study so that you will accumulate a profile of the linearity of the scale throughout a range of weights.

### **3. Safety issues and exclusions**

The measurement of weight using a standard balance beam scale poses no safety concerns or reasons for exclusion.

### **4. Participant and exam room preparation**

Study participants will be encouraged to empty their bladders and/or bowels prior to the measurement.

Script: “The measurement that we are about to take is more accurate if you use the bathroom before we measure you. If you need to use the bathroom, it is down the hall.”

Weight is measured without shoes or heavy jewelry and in the standard clinic gown; pockets of gown must be emptied of keys and other heavy objects.

Ideally, the scale should be positioned so that the examiner can stand behind the beam facing the participant, and can move the beam weights without reaching around the participant. When standing behind the scale, however, be aware that the scale markings must be read right to left. To be sure weight is read correctly, it is best to double-check the weight from in front of the scale.

## 5. Detailed measurement procedures

1) Before the participant steps onto the scale, lift the counterweight and position it all the way to the right. The top weight should be all the way to the left at the zero position.

The participant should stand quietly in the center of the platform, facing the balance beam, with their weight equally distributed on both feet, and not touching or supporting themselves on anything.

2) If a participant requires support from a cane while being weighed, weigh yourself with and without the participant's cane, etc., to determine its weight. Subtract the weight of the aid from the participant's weight before recording. In the event that it is necessary for the examiner to support the participant during weighing, provide the minimum support that is safe.

3) Adjust the counterweight, and then the top weight, until the beam is evenly balanced.

4) Weight is recorded to the nearest 0.1 kg, and should be recorded immediately after the measurement, before converting to pounds.

5) A chart for converting kilograms to pounds should be mounted near the scale, so that participants can be told their weight in pounds.

Script: "In order to measure your weight, please remove your shoes and heavy jewelry, and empty your pockets. Please step forward onto the center of the scale."

## 6. Procedures for performing the measurement at home

A portable scale is used to perform the weight measurement in the participant's home. The weight is measured and recorded in pounds (on page 34 in the Core Home Visit Workbook) during the home visit.

## 7. Alert values/follow-up/reporting to participants

Weight will be included on the Year 6 Participant Results report given to the participant at the time of the visit.

Participants with steep weight trajectories present a concern for occult disease (such as cancer). Those with weight loss of  $\geq 10\%$  at the Year 6 clinic visit will have their study

chart reviewed by an investigator at the field center. Participants with weight loss of  $\geq 10\%$  that appears to be unexplained will have the weight change brought to the attention of their physician with the participant's permission (see Appendix 1). The number of such cases would be a small proportion of the weight changers.

To determine whether or not a participant has lost  $\geq 10\%$  of their weight, compare the participant's Year 6 weight to the weights listed as 10% weight loss on the Data from Prior Visits Report. For example, if a participant weighed 76 kg at their Year 6 clinic visit, and the Data from Prior Visits Report listed 77 kg as representing a 10% weight loss, this would be considered a  $\geq 10\%$  weight loss.

## **8. Quality assurance**

### **8.1 Training requirements**

No special qualifications or experience are required to perform this assessment. Training should include:

- Read and study manual
- Attend Health ABC training session on techniques (or observe administration by experienced examiner)
- Practice on other staff or volunteers (Goal: minimize differences between repeat measurements)
- Discuss problems and questions with local expert or QC officer

### **8.2 Certification requirements**

- Complete training requirements
- Demonstrate calibration check procedures for scale
- Conduct exam on 2 volunteers:
  - According to protocol, as demonstrated by completed QC checklist

**8.3 Quality assurance checklist**

- Participant encouraged to use bathroom prior to measurement
- Measurement made in clinic gown without shoes, heavy jewelry, or other clothing
- Examiner stands in front of participant, if feasible
- Examiner double-checks weight by standing behind participant after the initial measurement
- Immediately records weight on data collection form to nearest 0.1 kg
- Ensures that participant stands still in center of platform
- Tells participant weight in pounds (and kilograms)
- Checks Data From Prior Visits Report and determines if participant has lost  $\geq 10\%$  of their weight since the last clinic visit

**9. Reference**

1. Lohman TG, Roch AF, Martorell R, eds. Anthropometric Standardization Reference Manual. Human Kinetics Books, Champaign, Illinois, 1988.

## APPENDIX 1

## Weight Change Alert Letter for Physician

September 13, 2002

Charles Cutler, M.D.  
512 Hamilton Road  
Marion, PA 19066

Dear Dr. Cutler:

On September 1, 2002, \_\_\_\_\_ was seen at the Health ABC Research Clinic.

At the last clinic visit one year ago, his/her weight was \_\_\_\_\_ lbs (kgs)  
The weight today was \_\_\_\_\_ lbs (kgs)

This weight is  $\geq 10\%$  (less) than one year ago.

All tests done for Health ABC were performed for research purposes only and will be used to describe the health status of men and women in their seventies and eighties who are taking part in this study. These tests are not intended to replace any tests that might be ordered for a specific clinical indication. Although we do not suggest a specific diagnosis or treatment, we hope this information is useful to you and your patient.

If you have any questions, please feel free to contact us at \_\_\_\_\_.  
Thanks you for your support.

Sincerely,

Anne Newman, M.D., MPH  
Health ABC Principal Investigator

Piera Kost  
Clinic Coordinator