

Physical Measures ID:

HRS | HEALTH AND RETIREMENT STUDY



IWER: Text in ***bold and italics*** is to be read to the respondent. Normal text is interviewer instructions or questions that are to be answered by you.

IWER: Mark an 'X' by each measurement for which R is eligible.

___ Blood Pressure

___ Breathing

___ Hand Strength

___ Balance Tests (with **30/60** second full-tandem): **Record this on the top of pages 11 & 12**

___ Walking Test: **Record eligibility at the top of pages 13 & 14**

___ Height

___ Weight: **Record eligibility at the top of pages 17 & 18**

___ Waist

___ Saliva Collection: **Record eligibility at the top of pages 21**

___ Blood Spot Assays

IWER: Before beginning the physical measurements, you must have a signed consent form from the Respondent.

ELIGIBILITY CRITERIA:

Balance stand: 30 seconds for Rs age 70+; 60 seconds for Rs age < 70

Walking speed: Administered to Rs age 65+

Weight: Administered to Rs who weigh < 300 pounds

Barcode ID

**HEALTH AND RETIREMENT STUDY
PHYSICAL MEASURES CONSENT FORM**

Approved consent form to be inserted here

[NI802]

IWER: If R signed the physical measures consent form, continue to Blood Pressure Measurement (page 1).

If R did not sign the physical measures consent form, do not complete these measures. Put an "X" on the consent form and skip to saliva consent instructions on page 21.

BLOOD PRESSURE

Equipment needed: Omron HEM-780N Monitor, Batteries, Stopwatch

“Now let’s talk about the first activity. I’d like to measure your blood pressure using this monitor and cuff which I will secure around your left arm. I would like to take three blood pressure measures. I will ask you to relax and remain seated and quiet during the measurements. First, I will place the cuff on your left arm. Once the cuff is placed appropriately on your arm and we are ready to begin, I’ll ask you to lay your arm on a flat surface palm facing up so that the center of your upper arm is at the same height as your heart. I will then press the Start button. The cuff will inflate and deflate automatically. After we have completed all three measures, I will give you your results.”

IWER: Demonstrate the measurement.

- Insert arm cuff plug into jack on the side of the monitor, place the cuff on your left arm approximately ½” above the elbow. Position the blue marker over the brachial artery on the inside of the arm. Press the START/STOP button to show how the cuff will inflate automatically. Do not need to let the cuff fully inflate for demonstration.

“Do you have a rash, a cast, edema (swelling) in the arm, open sores or wounds, or a significant bruise where the blood pressure cuff will be in contact?” (IWER: Circle one)

- 1.....YES → do not complete this measure and answer question in box below
- 5.....NO → continue

“Do you understand the directions for this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

[NI854] BASED ON RESPONSE TO ABOVE QUESTIONS

IWER: Why didn’t R complete the blood pressure measurement? (Circle all that apply) **[NI855]**

- 1.....R felt it would not be safe
- 2.....IWER felt it would not be safe
- 3.....R refused or was not willing to complete the test
- 4.....R tried but was unable to complete test
- 5.....R did not understand the instructions
- 6.....R had a rash, a cast, edema, etc. on arm; other health reason
- 7.....No suitable space
- 8.....Problem with equipment or supplies; cuff did not fit
- 97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR ADMINISTERING BLOOD PRESSURE MEASUREMENT:

- 1) Instruct R to remove bulky clothing from upper left arm.
- 2) Instruct R to sit in a chair with his/her feet flat on the floor and place his/her upper arm on a table.
- 3) Place the cuff on the R's left arm approximately ½" above the elbow. Position the blue marker over the brachial artery on the inside of the arm.
- 4) Press the sewn hook material firmly against the side of the cuff. [The cuff should make direct contact with the R's skin if possible]. The Iwer should easily be able to fit his/her index finger between the cuff and the arm.
- 5) Instruct the R to rest his/her arm comfortably on a support (like a table) with palm facing upward so the cuff is at the same level as the heart.
- 6) Press the START/STOP button and instruct the R to remain still. The cuff will begin to inflate automatically. Numbers will appear on the display.
- 7) The cuff will then automatically deflate. The monitor will first display the SYSTOLIC and DIASTOLIC readings. RECORD time of reading and both SYSTOLIC and DIASTOLIC readings in chart below. Record the pulse identified by the letter P.
- 8) Press the START/STOP button to repeat the measure. The cuff does not need to be removed or loosened in between readings. If you receive an error message, remove cuff, reposition and try again.
- 9) Allow approximately 45 seconds to 1 minute between readings and repeat steps 6-9 two more times.

IWER: Record measurements in chart: (Enter 993 in first systolic reading if R tried but was unable to do it. Enter 999 if R chose not to do it.) If the lowest reading obtained is greater than 160 systolic or greater than 110 diastolic, fill out the High-Blood Pressure Card and leave it with the respondent.

Measurement #	Time of Reading	Systolic Reading	Diastolic Reading	Pulse
1	[NI857] __ __: __ __ am/pm	[NI859] mmHg	[NI860] mmHg	[NI861] P
2	[NI862] __ __: __ __ am/pm	[NI864] mmHg	[NI865] mmHg	[NI866] P
3	[NI867] __ __: __ __ am/pm	[NI869] mmHg	[NI870] mmHg	[NI871] P

[NI872] IWER: Which arm was used to conduct the measurements? (Circle one)

- 1.....Left arm
- 2.....Right arm

[NI873] IWER: How compliant was R during this measurement? (Circle one)

- 1.....R was fully compliant
- 2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts
- 3.....R was not fully compliant, but no obvious reason for this

[NI874] IWER: What was R's position for this test? (Circle one)

- 1.....Standing
- 2.....Sitting
- 3.....Lying down

[NI875] IWER: Did the R smoke, exercise, consume alcohol or food within the 30 minutes prior to completing the blood pressure test? (Circle one)

- 1.....Yes
- 5.....No
- 8.....Don't Know

BREATHING MEASUREMENT

Equipment needed: Peak flow meter, Disposable mouthpiece(s) packaged in plastic bag, Stopwatch

“Next I’m going to ask you to perform a simple measurement that will measure how fast you can expel air from your lungs. It is important that you blow as hard and as fast as you can. I would like you to perform the measurement three times. When we are ready to begin, I’ll ask you to stand up. Take as deep a breath as possible. Open your mouth and close your lips firmly around the outside of the mouthpiece, and then blow as hard and as fast as you can into the mouthpiece. Like this...”

IWER: Demonstrate the measurement.

- Stand up, take a deep breath and then place lips around the outside of the plastic mouthpiece. Blow as hard and as fast as you can.

“Do you understand the directions for this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI804] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI805] IWER: Why didn’t R complete the breathing test? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the test

4.....R tried but was unable to complete test

5.....R did not understand the instructions

6.....R could not participate due to health reasons

7.....No suitable space

8.....Problem with equipment or supplies

97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR ADMINISTERING THE BREATHING MEASUREMENT:

- 1) Hand the R the instrument and a disposable mouthpiece and have the R firmly place the cardboard mouthpiece on the instrument.
- 2) R should hold the instrument lightly with the slot facing away from the R’s hand so that the R’s fingers do not obstruct the slot.
- 3) Ask R to stand up and take a deep breath and then place lips around the outside of the mouthpiece.
- 4) Ask the R to blow as hard and as fast as he or she can.
- 5) Record the value indicated by the marker in the chart below.
- 6) Reset the marker and repeat for a total of three tries.
- 7) Allow 30 seconds between tries.

IWER: Record measurements in chart: (Record 30 if less than 60; Record 890 if past last tick mark; Record 993 if R tried but was unable; or Record 999 if R chose not to do it.)

Measurement #	Measurement Reading
1	[NI807] L/Min
2	[NI808] L/Min
3	[NI809] L/Min

[NI810] IWER: How much effort did R give to this test? (Circle one)

1R gave full effort

2R was prevented from giving full effort by illness, pain, or other symptoms or discomforts

3R did not appear to give full effort, but no obvious reason for this

[NI811] IWER: What was R’s position for this test? (Circle one)

1Standing

2Sitting

3Lying down

HAND STRENGTH

Equipment needed: Dynamometer, Stopwatch

“Now I would like to assess the strength of your hand in a gripping action. I will ask you to squeeze this handle as hard as you can, just for a couple of seconds and then let go. I will take alternately two measurements from your right and your left hands.”

IWER: Demonstrate the measurement.

- Stand, hold the dynamometer at a right angle and squeeze the handle for a few seconds.

“Before we begin, I’d like to make sure it is safe for you to do this measurement. Have you had surgery or experienced any swelling, inflammation, severe pain, or injury in one or both hands within the last 6 months?” (IWER: Circle one)

- 1.....YES → continue with the next question
5.....NO → skip the next question

“In which hand (have you had surgery or experienced any swelling, inflammation, severe pain, or injury in the last 6 months)?” (IWER: Circle one)

- 1.....BOTH HANDS → do not complete this measure and answer question in box below
2.....LEFT HAND ONLY → continue but do not perform measurement on left hand
3.....RIGHT HAND ONLY → continue but do not perform measurement on right hand

“Do you understand the directions for this measurement?” (IWER: Circle one)

- 1.....YES → continue
5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

- 1.....YES → continue
5.....NO → do not complete this measure and answer question in box below

[NI812] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI812] IWER: Why didn’t R complete the hand strength test? (Circle all that apply)

- 1.....R felt it would not be safe
2.....IW ER felt it would not be safe
3.....R refused or was not willing to complete the test
4.....R tried but was unable to complete test
5.....R did not understand the instructions
6.....R could not participate due to surgery, swelling, etc.; other health reason
7.....No suitable space
8.....Problem with equipment or supplies
97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR ADMINISTERING THE HAND STRENGTH MEASUREMENT:

[NI815] 1) *“Which is your dominant hand?”* (IWER: Circle one)

- 1.....Right hand
- 2.....Left hand
- 3.....Both hands equally dominant

- 2) Suggest R removes rings or other hand jewelry.
- 3) Using the R’s dominant hand, adjust dynamometer to hand size by turning the lever.
- 4) Position the respondent correctly, standing with arm at side at a 90 degree angle.
- 5) Reset arrow at zero.
- 6) Explain the procedure once again.
- 7) Let respondent have one practice with their dominant hand. If R can’t use dominant hand, practice on other hand and wait for 30 seconds between each try.
- 8) Reset the marker and repeat for a total of two tries on each hand beginning with the left hand if the R is able.
- 9) Record measurements to **the nearest 0.5 kilogram** in the table below. (e.g., 10.5kg)

IWER: Record measurements in chart.

Measurement #	Left Hand	Right Hand
1	[NI816] _____.__kg	[NI851] _____.__kg
2	[NI852] _____.__kg	[NI853] _____.__kg

IWER: Record 993 if R tried but was unable. Record 999 if R chose not to do it → Go to next measurement.

[NI817] IWER: How much effort did R give to this test? (Circle one)

- 1R gave full effort
- 2R was prevented from giving full effort by illness, pain, or other symptoms or discomforts
- 3R did not appear to give full effort, but no obvious reason for this

[NI818] IWER: What was R’s position for this test? (Circle one)

- 1Standing
- 2Sitting
- 3Lying down

[NI819] IWER: Did the R rest their arm on a support while performing the test? (Circle one)

- 1Yes
- 5No

SEMI-TANDEM – ALL RESPONDENTS

Equipment needed: Stopwatch, Show Card

“I would now like you to try to stand in different positions. I will first describe and show each position to you. Then I’d like you to try to do it. If you cannot do a particular position, or if you feel it would be unsafe to try to do it, tell me and we’ll move on to the next one. Let me emphasize that I do not want you to try to do any activity that you feel might be unsafe.”

“For the first one, I want you to try to stand with the side of the heel of one foot touching the big toe of the other foot for about 10 seconds. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. You may put either foot in front, whichever is more comfortable for you. Like this...”

IWER: Demonstrate the measurement.

- Stand and place the heel of one foot touching the big toe of the other foot. May show Balance Test Card as an example.

“Before we begin, do you have any problems from recent surgery, injury or other health conditions that might prevent you from standing up from a chair and balancing?” (IWER: Circle one)

- 1.....YES → discuss with him/her whether s/he should attempt each measurement given his/her physical problems after describing each measurement. Do not assume a respondent is too physically limited to attempt a measurement without discussing it with him/her.
- 5.....NO → continue

“Do you understand the directions for this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

[NI876] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI877] IWER: Why didn’t R complete the semi-tandem stand? (Circle all that apply)

- 1.....R felt it would not be safe
- 2.....IWER felt it would not be safe
- 3.....R refused or was not willing to complete the test
- 4.....R tried but was unable to complete test
- 5.....R did not understand the instructions
- 6.....R had surgery, injury or other health condition that prevented R from standing
- 7.....No suitable space
- 8.....Problem with equipment or supplies
- 97.....Other (Specify): _____

→ Go To Side-by-Side on Page 9

INSTRUCTIONS FOR SEMI-TANDEM:

- 1) Ensure R is wearing appropriate footwear (shoes with very low or no heel).
- 2) Ensure floor is level, preferably has no carpet or low-pile carpet.
- 3) Ask the R to stand up.
- 4) Stand to the side of the respondent.
- 5) Instruct the R to try to stand with the side of the heel of one foot touching the big toe of the other foot for about 10 seconds.
- 6) Instruct the R that he/she may put either foot in front, whichever is more comfortable for him/her.
- 7) Instruct the R that he/she may use his/her arms, bend his/her knees or move the body to maintain balance, but try not to move his/her feet.
- 8) If necessary, provide gentle support to the respondent's arm to help him/her get into the semi-tandem position.
- 9) Instruct the R to try to hold this position until you tell the R to stop.
- 10) Let go of R's arm. Say "**Ready, begin.**" and start the stopwatch immediately.
- 11) Stop the stopwatch and say "**Stop**" after 10 seconds or when the participant steps out of position or grabs your arm.
- 12) Answer the questions in the box below. If the participant is unable to hold the position for 10 seconds, record the time in seconds to two decimal places in the box below.



[NI879] IWER: Did R hold semi-tandem stand for a full 10 seconds without stepping out of place or grabbing hold of anything? (Circle one)

1Yes

5No →

993R tried but was unable

999R chose not to do it

[NI881] IWER: Did R use any compensatory movements of his/her trunk, arms or legs to steady him/herself during semi-tandem stand? (Circle one)

1Yes

5No

8Don't Know

IWER:

- If R **was able** to complete the semi-tandem for the full 10 seconds without stepping out of place or grabbing a hold of anything → Go To Full-Tandem on page 11.

- If R **was not able** to complete the semi-tandem for the full 10 seconds without stepping out of place or grabbing a hold of anything → Go To Side-By-Side on page 9.

SIDE-BY-SIDE

Equipment needed: Stopwatch, Show Card

"Now I will show you the next movement. I want you to try to stand with your feet together, side-by-side for about 10 seconds. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop. Like this..."

IWER: Demonstrate the measurement.

- Stand with feet together.

"Do you understand the directions for this measurement?" (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

"Do you feel it would be safe for you to do this measurement?" (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI883] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI884] IWER: Why didn't R complete the Side-by-Side stand? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the test

4.....R tried but was unable to complete test

5.....R did not understand the instructions

6.....R had surgery, injury or other health condition that prevented R from standing

7.....No suitable space

8.....Problem with equipment or supplies

97.....Other (Specify): _____

→ Go To Walking Speed on Page 13

INSTRUCTIONS FOR SIDE-BY-SIDE:

- 1) Ensure R is wearing appropriate footwear (shoes with very low or no heel).
- 2) Ensure floor is level, preferably has no carpet or low-pile carpet.
- 3) Ask the R to stand up.
- 4) Stand to the side of the respondent.
- 5) Instruct the R to try to stand with feet together, side-by-side for about 10 seconds.
- 6) Instruct the R that he/she may use his/her arms, bend his/her knees or move the body to maintain balance, but try not to move his/her feet.
- 7) If necessary, provide gentle support to the respondent's arm to help him/her get into the side-by-side position.
- 8) Instruct the R to try to hold this position until you tell the R to stop.
- 9) Let go of R's arm. Say "**Ready, begin.**" and start the stopwatch immediately.
- 10) Stop the stopwatch and say "**Stop**" after 10 seconds or when the participant steps out of position or grabs your arm.
- 11) Answer the questions in the box below. If the participant is unable to hold the position for 10 seconds, record the time in seconds to two decimal places in the box below.



[NI886] IWER: Did R hold side-by-side stand for a full 10 seconds without stepping out of place or grabbing hold of anything? (Circle one)

1.....Yes

5.....No → Enter amount of time R held stand in seconds to two decimal places ____ . ____

993.....R tried but was unable

999.....R chose not to do it

[NI888] IWER: Did R use any compensatory movements of his/her trunk, arms or legs to steady him/herself during side-by-side stand? (Circle one)

1.....Yes

5.....No

8.....Don't Know

[NI889] IWER: Record the type of floor surface that the balance measures were conducted on. (Circle one)

1.....Linoleum/tile/wood

2.....Low-pile carpet

3.....High-pile carpet

4.....Concrete

5.....Not sure

97.....Other (Specify): _____

[NI891] IWER: How compliant was R during the balance measurements? (Circle one)

1.....R was fully compliant

2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts

3.....R was not fully compliant, but no obvious reason for this

→ Go to Walking Speed on Page 13

FULL-TANDEM

Equipment needed: Stopwatch, Show Card

Record eligible time from cover

Tandem Time: ____30 sec ____60

IWER: Refer to inside the front cover of this booklet to locate the full-tandem time for which R is eligible.

1.....30 seconds full-tandem balance measurement

5.....60 seconds full-tandem balance measurement

“Now I want you to try to stand with the heel of one foot in front of and touching the toes of the other foot for about [30/60] seconds. You may put either foot in front, whichever is more comfortable for you. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop. Like this...”

IWER: Demonstrate the measurement.

- Stand and place the heel of one foot touching the toes of the other foot.

“Do you understand the directions for this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI893] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI894] IWER: Why didn't R complete the full-tandem stand? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the test

4.....R tried but was unable to complete test

5.....R did not understand the instructions

6.....R had surgery, injury or other health condition that prevented R from standing

7.....No suitable space

8.....Problem with equipment or supplies

97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR FULL-TANDEM:

Record eligible time from cover
Tandem Time: ___30 sec___60 sec

- 1) Ensure R is wearing appropriate footwear (shoes with very low or no heel).
- 2) Ensure floor is level, preferably has no carpet or low-pile carpet.
- 3) Ask the R to stand up.
- 4) Stand to the side of the respondent.
- 5) Instruct the R to try to stand with the heel of one foot in front of and touching the toes of the other foot for about [30/60] seconds.
- 6) Instruct the R that he/she may use his/her arms, bend his/her knees or move the body to maintain balance, but try not to move his/her feet.
- 7) If necessary, provide gentle support to the respondent's arm to help him/her get into the full-tandem position.
- 8) Instruct the R to try to hold this position until you tell the R to stop.
- 9) Let go of R's arm. Say "**Ready, begin.**" and start the stopwatch immediately.
- 10) Stop the stopwatch and say "**Stop**" after [30/60] seconds or when the participant steps out of position or grabs your arm.
- 11) Answer the questions in the box below. If the participant is unable to hold the position for [30/60] seconds, record the time in seconds to two decimal places in the box below.



[NI896] IWER: Did R hold full-tandem stand for a full [30/60] seconds without stepping out of place or grabbing hold of anything? (Circle one)

1.....Yes

5.....No → Enter amount of time R held stand in seconds to two decimal places __ __. __ __

993.....R tried but was unable

999.....R chose not to do it

[NI898] IWER: Did R use any compensatory movements of his/her trunk, arms or legs to steady him/herself during full- tandem stand? (Circle one)

1.....Yes

5.....No

8.....Don't Know

[NI899] IWER: Record the type of floor surface that the balance measures were conducted on. (Circle one)

1.....Linoleum/tile/wood

2.....Low-pile carpet

3.....High-pile carpet

4.....Concrete

5.....Not sure

97.....Other (Specify): _____

[NI902] IWER: How compliant was R during the balance measurements? (Circle one)

1.....R was fully compliant

2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts

3.....R did not appear to be fully compliant, but no obvious reason for this

WALKING SPEED

Is R eligible for Walking Speed Test?
_____ YES _____ NO

Equipment needed: Tape measure, Stopwatch, Masking Tape

“Next, I would like to assess whether you can walk a very short distance comfortably (using a walking stick or other aid if necessary). First, I want to make sure it is safe to carry out the measurement. Do you have any problems from recent surgery, injury, or other health conditions that might prevent you from walking?” (IWER: Circle one)

- 1.....No apparent restriction → continue
- 2.....Yes, recent surgery → do not complete this measure and answer question in box below
- 3.....Yes, injury → do not complete this measure and answer question in box below
- 4.....Yes, other health condition → do not complete this measure and answer question in box below

“Now let’s find a place where we can conduct the measurement. We will need a clear space about 12 feet long in a non-carpeted area, if possible. I’m going to place the measuring tape alongside the space where the walk will take place.”

IWER: Set up the course (98.5 Inches)

“This is our walking course. I am going to time you as you walk the course. I will be asking you to walk the course two times. I’ll walk along side you the whole time during the measurement. Now I’d like to demonstrate how to do the measurement. You will start by lining your feet up at the starting point.”

IWER: Demonstrate the measurement.

“Do you understand the directions for this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

- 1.....YES → continue
- 5.....NO → do not complete this measure and answer question in box below

[NI820] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI821] IWER: Why didn’t R complete the walking speed test? (Circle all that apply)

- 1.....R felt it would not be safe
- 2.....IWER felt it would not be safe
- 3.....R refused or was not willing to complete the test
- 4.....R tried but was unable to complete test
- 5.....R did not understand the instructions
- 6.....R had surgery, injury, or other health condition that prevented R from walking
- 7.....No suitable space available
- 8.....Problem with equipment or supplies
- 97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR THE WALKING SPEED TEST:

Is R eligible for Walking Speed Test?

_____ YES _____ NO

- 1) Ensure that the respondent is wearing appropriate footwear at this point. If not, ask R to change shoes or to put shoes on.
- 2) Instruct R to stand with his/her feet lined up to the front of the tape.
- 3) Say the following to the R ***“I am going to time you as you walk the course at your normal pace. I will be asking you to walk the course at your usual pace a total of two times. I’ll walk along side you the whole time during the measurement. I’d like you to stand here with your feet lined up. Start walking when I say ‘Begin’. Walk all the way past the other end of the tape before you stop. Are you ready to go now? Begin.”***
- 4) Start stopwatch when either foot is placed down on the floor across the start line.
- 5) Walk behind and slightly to the side of the R.
- 6) Stop the stopwatch when R’s foot crosses the tape and touches the floor. Record the time in chart below.
- 7) Repeat the measurement: ***“Now I want you to repeat the walk. Remember to walk at your usual pace and go all the way past the other end of the course. I’d like you to stand here with your feet lined up. Start walking when I say ‘Begin’. Are you ready to go now? Begin.”***

IWER: Record measurements in chart. (Record 993 if R tried but was unable. Record 999 if R chose not to do it)

Measurement #	Walking Speed Time
1	[NI823] _____.____ (seconds)
2	[NI824] _____.____ (seconds)

EX: 1 0.1 5 (seconds)

[NI825] IWER: Record type of floor surface. (Circle one)

- 1.....Linoleum/tile/wood
- 2.....Low-pile carpet
- 3.....High-pile carpet
- 4.....Concrete
- 5.....Not sure
- 97.....Other (Specify): _____

[NI828] IWER: Record type of aid used. (Circle one)

- 1.....None
- 2.....Walking stick or cane
- 3.....Elbow crutches
- 4.....Walking frame
- 97.....Other (Specify): _____

[NI830] IWER: How compliant was R during this measurement? (Circle one)

- 1.....R was fully compliant
- 2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts
- 3.....R was not fully compliant, but no obvious reason for this

HEIGHT

Equipment needed: Tape measure, Rafter's square, Self-adhesive Note, Pencil

"Next, I would like to measure your height. To complete this measurement, I'll be asking you to take off your shoes and stand up against a wall. I will then place this rafter's square on top of your head and mark your height on this post-it note."

"Do you understand the directions for this measurement?" (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

"Do you feel it would be safe for you to do this measurement?" (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI831] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI832] IWER: Why weren't you able to measure R's height? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the measurement

4.....R tried but was unable to complete measurement

5.....R did not understand the instructions

6.....R is not able to stand; other health reason

7.....There was no suitable space available

8.....Problem with equipment or supplies

9.....Respondent too tall, interviewer could not reach

97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR MEASURING HEIGHT:

- 1) Ask R for location to conduct measurement and for permission to place the self-adhesive note on the wall.
- 2) Make sure R is standing up as straight as comfortable with his/her heels and shoulders as close to the wall as comfortable.
- 3) Place a self-adhesive note on the wall near the top of the R's head.
- 4) Position your rafter's square against the wall directly over the R's head. It should be parallel to the floor, resting on the R's head but not pressing on it.
- 5) Make a mark on the self-adhesive note at the bottom of the rafter's square.
- 6) Ask the R to move away from the wall.
- 7) Position the tape measure under a door jam, floor molding or your foot and measure from the floor to the mark on the self-adhesive note.
- 8) Record R's height in **inches** (rounded to the **nearest quarter inch**) on self-adhesive note on the wall and remove it from the wall.

IWER: Record measurement in chart.

Measurement #	Measurement
1	[NI834] _____.____ inches

EXAMPLE:
Record 67 . 25 inches
Do NOT Record 5 ft 7 1/4 inches

[NI835] IWER: Record the type of floor surface (Circle one)

1.....Linoleum/tile/wood

2.....Low-pile carpet

3.....High-pile carpet

4.....Concrete

5.....Not sure

97.....Other (Specify): _____

[NI837] IWER: Was R wearing shoes during the measurement? (Circle one)

1.....Yes

5.....No

[NI903] IWER: How compliant was R during this measurement? (Circle one)

1.....R was fully compliant

2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts

3.....R was not fully compliant, but no obvious reason for this

WEIGHT

Is R eligible for Weight Measurement?

_____ YES _____ NO

Equipment needed: Scale

“Now, I’d like to measure your weight. To measure your weight, I will ask you to stand on this scale, with your shoes off, while I read the display.”

“Do you understand the directions for this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI838] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI839] IWER: Why weren’t you able to measure R’s weight? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the measurement

4.....R tried but was unable to complete measurement

5.....R did not understand the instructions

6.....R is not able to stand or balance on scale; other health reason

7.....No suitable space available

8.....Scale did not work; other problem with equipment or supplies

97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR MEASURING WEIGHT:

Is R eligible for Weight Measurement?

YES NO

- 1) Ask R for location to conduct measurement – a hard-surface floor or thin pile carpet.
- 2) Make sure R’s shoes are off or ask him/her to remove shoes.
- 3) Ask R to remove heavy objects from pockets and/or heavy sweaters as needed.
- 4) Position scale so you can see display while R is standing on it.
- 5) Turn scale on, tap middle of scale with foot, and wait for 0.0 to appear static.
- 6) Ask R to stand on scale.
- 7) Record R’s weight (to the nearest 1/2 pound).
- 8) R can sit down and put shoes back on.

IWER: Record measurement in chart: (Enter 993 if R tried but received an error message.)

Measurement #	Weight Measurement
1	[NI841] _ _ _ . _ pounds

[NI842] IWER: Record the type of floor surface (Circle one)

1..... Linoleum/tile/wood
2..... Low-pile carpet
3..... High-pile carpet
4..... Concrete
5..... Not sure
97..... Other (Specify): _____

[NI844] IWER: Was R wearing shoes during the measurement? (Circle one)

1..... Yes
5..... No

[NI847] IWER: How compliant was R during this measurement? (Circle one)

1..... R was fully compliant
2..... R was prevented from fully complying due to illness, pain, or other symptoms or discomforts
3..... R was not fully compliant, but no obvious reason for this

WAIST

Equipment needed: Soft Tape Measure

“Next I’m going to ask you to perform a simple measurement of your waist circumference. For this measurement it is important for you to be standing. I will ask you to identify where on your body your navel (belly button) is located. I will then ask you to place this soft measuring tape around your waist, over your clothing, holding it securely at the level of your navel. Once the tape measure is placed appropriately around your waist then we are ready to begin. I will ask you to take a normal breath and exhale, holding your breath at the end of the exhale. I will then record the measurement.”

IWER: Demonstrate the measurement.

- Stand and locate navel. Place measuring tape over the clothing around the waist at the level of the navel. Take a normal breath and exhale, holding breath at end of exhale and letting the tape out slightly.

IWER: Ask if necessary: (***“Before we begin, do you feel you are able to stand while we do this measurement?”***) (IWER: Circle one)

1YES → continue

5NO → do not complete this measure and answer question in box below

“Do you understand the directions for this measurement?” (IWER: Circle one)

1YES → continue

5NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1YES → continue

5NO → do not complete this measure and answer question in box below

[NI904] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI905] IWER: Why weren’t you able to measure R’s waist? (Circle all that apply)

1R felt it would not be safe

2IWER felt it would not be safe

3R refused or was not willing to complete the measurement

4R tried but was unable to complete measurement

5R did not understand the instructions

6R is not able to stand; other health reason

7No suitable space

8Problem with equipment or supplies

97Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR MEASURING WAIST CIRCUMFERENCE:

- 1) Instruct R to remove bulky clothing.
- 2) R should be in the standing position and measuring tape should be applied over the clothing around the waist at the level of the navel.
- 3) Ask Respondent to point to his/her navel.
- 4) Instruct R to place the tape around his/her waist at the level of the navel. The R should hold tape in place at the navel. The tape should be snug but not tight. If the R is not able to put the tape around his/her waist, you may have them hold one end of the tape measure at their navel, and walk around the R with the other end.
- 5) Check that the tape is horizontal all away around the R.
- 6) Instruct R to take a normal breath and exhale, holding breath at end of exhale.
- 7) Read the measurement on the tape after the R exhales. Record measurement to nearest **quarter inch** in the chart below (e.g. 42.25 inches).

IWER: Record measurements in chart. (Enter 993 if R tried but was unable to do it. Enter 999 if R chose not to do it.)

Measurement #	Waist Measurement
1	[NI907] _____ inches

EXAMPLE:
 — 4 2 . 2 5 inches

- [NI908]** IWER: What difficulties occurred during this measurement? (Circle all that apply)
- 1.....None
 - 2.....R had breathing difficulties
 - 3.....R was unable to hold breath at the end of the exhale
 - 4.....R was prevented from giving full effort by illness, pain, or other symptoms or discomforts
 - 5.....R did not appear to give full effort, but no obvious reason for this
 - 6.....Had difficulty or unable to locate navel
 - 97.....Other (Specify): _____
- [NI910]** IWER: How compliant was R during this measurement? (Circle one)
- 1.....R was fully compliant
 - 2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts
 - 3.....R was not fully compliant, but no obvious reason for this
- [NI911]** IWER: Who completed the measurement? (Circle one)
- 1.....R completed the measurement
 - 2.....IWER completed the measurement
- [NI912]** IWER: Was the R wearing bulky clothing during this measurement? (Circle one)
- 1.....Yes
 - 5.....No

Is R eligible for Saliva Collection? _____ YES _____ NO

IWER: If the Respondent is not eligible for the saliva collection, do not complete this measure. Put an "X" through the consent form and skip to the blood spot collection on page 27.

IWER: If the Respondent is eligible for the saliva collection, you must have a signed consent form from the Respondent before beginning the measure.

"The next measure involves collecting a saliva sample. This simply involves depositing a small amount of saliva into a collection container. Before we begin, I would like to have you read and sign this consent form."

Saliva Barcode ID

**HEALTH AND RETIREMENT STUDY
SALIVA COLLECTION CONSENT FORM**

Approved consent form to be inserted here

[NI913]

IWER: If R signed the saliva consent form, continue to Saliva Sample (page 25).

If R did not sign the saliva consent form, do not complete this measure. Put an "X" through the consent form and skip to blood consent instructions on page 27.

SALIVA SAMPLE

Equipment needed: Saliva Collection Kit (Oragene collection container, plastic bag with absorbent sheet, padded mailing envelope, stopwatch, small placemat, Sample Collection kit, Saliva Tip Card)

IWER: Did the R eat, drink, smoke or brush his/her teeth after starting the physical measures?
(Circle one)

1.....YES

5.....NO

“As I mentioned, I would like you to deposit a small amount of saliva into a collection container.”

IWER: Show the Respondent the sample saliva kit to indicate how much saliva will be needed.

“Do you understand the directions for this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI915] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI941 or NI916] IWER: Why didn't R complete the saliva sample? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the measurement

4.....R tried but was unable to complete measurement

5.....R did not understand the instructions

6.....R ate, drank, smoked, or brushed teeth in last 30 minutes

7.....No suitable space

8.....Problem with equipment or supplies

97.....Other (Specify): _____

→ Go To Next Measurement

INSTRUCTIONS FOR SALIVA SAMPLE COLLECTION:

- 1) Place the small placemat on the surface where you will be collecting the saliva. Open the saliva collection kit.
- 2) Remove the Oragene collection kit and the plastic bag with the absorbent sheet.
- 3) Remove one of the barcode labels from the Saliva Authorization Card and confirm the saliva barcode ID on top of the consent form.
- 4) Open the Oragene collection case and place the barcode label on the blue cap of the collection container.
- 5) Put on a pair of vinyl gloves, and remove the clear Oragene saliva collection container.
- 6) Hand the clear portion of the collection container to the Respondent. Instruct them to spit into the container until the bottom portion is full. Show the R the Saliva Collection Tip Card if necessary.

****IWER: Allow about 3 minutes for the R to fill the vial before continuing with the blood sample. If R needs more time to fill the vial, collect the vial and answer the questions below after you have completed the data entry for the physical measures and biomarkers (before beginning Section J). If you were not able to collect a saliva sample record the reason in the box on the previous page.**

- 7) When the Respondent has reached the level necessary, put the container on a flat surface.
- 8) Screw the cap onto the container. Make sure the cap is closed securely.
- 9) You will notice liquid from the cap filling the collection container. This is a preservative.
- 10) Once the cap is on tightly, gently mix for 10 seconds.
- 11) Place collection container in the plastic bag with the absorbent material.
- 12) Remove gloves.
- 13) Record the date and time the saliva collection was finished on the Saliva Authorization Card and remove it from the booklet (tear off at perforations).
- 14) Place the Saliva Authorization Card and plastic bag containing the collection container in the padded envelope.
- 15) Mail the specimen as soon as possible (if not the same day as the collection, store sample in a refrigerator).

[NI918] IWER: Did the R fill the vial to the desired level? (Circle one)

1.....Yes

5.....No

[NI919] IWER: What, if any, problems occurred? (Circle all that apply)

1.....None

2.....Solution in cover leaked before vial was sealed

3.....Saliva spilled

4.....R was unable to produce enough saliva

5.....Collection container leaked; other problem with equipment or supplies

97.....Other (Specify): _____

[NI921] IWER: How compliant was R during this measurement? (Circle one)

1.....R was fully compliant

2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts

3.....R was not fully compliant, but no obvious reason for this

IWER: Before beginning the blood spot collection you must have a signed consent form from the Respondent.

“I’d like to collect a small sample of your blood using just a finger prick. We would be very grateful if you would agree to provide us with a sample of blood. This is an important part of the study, as the analysis of blood samples will tell us a lot about the health of the population. Before we begin, I would like to have you read and sign this consent form.”

Blood Spot Barcode ID

**HEALTH AND RETIREMENT STUDY
BLOOD SPOT COLLECTION CONSENT FORM**

Approved consent form to be inserted here

[NI922]

IWER: If R signed the blood consent form, continue to Blood Sample (page 31).

If R did not sign the blood consent form, do not complete this measure. Put an “X” through the consent form. Thank the R and enter the requested information in the computer. Do not make any marks in this booklet.

BLOOD SAMPLE COLLECTION

Equipment needed: Blood Spot Collection Kit (1 lab authorization Forms; 2 blood spot collection cards; 1 lancet; alcohol prep pad; sterile gauze pad; adhesive bandage; foil envelope, pre-addressed, prepaid mailing envelope with desiccant), Biohazard container, 3 pairs of vinyl gloves

“As I mentioned, I’d like to collect a small sample of your blood. I will clean your finger with an alcohol wipe, then using a small instrument I will prick your finger and collect enough blood to fill up to four small areas on two collection cards.”

“Do you understand the directions for this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

“Do you feel it would be safe for you to do this measurement?” (IWER: Circle one)

1.....YES → continue

5.....NO → do not complete this measure and answer question in box below

[NI923] BASED ON RESPONSE TO ABOVE QUESTIONS

[NI943 or NI924] IWER: Why didn’t R complete the blood sample? (Circle all that apply)

1.....R felt it would not be safe

2.....IWER felt it would not be safe

3.....R refused or was not willing to complete the measurement

4.....R tried but was unable to complete measurement

5.....R did not understand the instructions

6.....R has hemophilia or is on medication that thins the blood (anticoagulant)

7.....No suitable space

8.....Problem with equipment or supplies

97.....Other (Specify): _____

→ Thank the R and enter the requested information in the computer

INSTRUCTIONS FOR BLOOD SAMPLE COLLECTION:

- 1) Open the Blood Collection Kit, remove the contents and place on a hard, clean, and dry surface (If any item is opened or broken, do not use).
- 2) Write the date and time of the blood collection on the top portion of the lab authorization form, and in this booklet (chart below).
- 3) While putting on a pair of vinyl gloves ask the R to rub hands together or massage them so blood is flowing to finger tips. Activate the hand warmer and provide it to the respondent.
- 4) Place a barcode label from the lab authorization form at the bottom of this page.
- 5) Clean the R's finger with the alcohol prep pad and make sure the R's finger is dry before proceeding.
- 6) Remove blue tip from lancet in order to activate it. While holding the R's hand firmly, place the lancet on the side of the pad of the R's middle or ring finger or the R's thumb.
- 7) Prick the finger with the lancet. If necessary, instruct the R to gently squeeze his/her finger from the base several times to form a large drop of blood.
- 8) With the sterile gauze pad, wipe away the first drop of blood.
- 9) When the next large drop of blood is formed, allow the blood to drop onto the center of the left-most circle on the blood collection card. If a single drop of blood does not completely fill a circle, you may add additional drops beside the first until the circle is filled. Try not to overlap the drops. If the blood does not absorb into the card, gently tap the card to break the surface tension of the blood and allow it to flow through to the card below.
- 10) Once the R completely fills one of the circles, assist the R with filling the other two circles on the first card and then fill the three spots on the second card for storage.
- 11) If the R is able and willing, fill the remaining two spots on the first card and then continue to fill the remaining two spots on the second card.
- 12) Provide the R with a bandage.
- 13) Place both blood spot cards into the cardboard box provided to allow for more drying time.
- 14) Place or ask the R to place the used gauze pad, alcohol wipe, and wrappers in the plastic bag and discard in the garbage. Place the lancet in the small biohazard container to be discarded later.
- 15) Remove gloves and discard.
- 16) When samples are dry – approximately 2 hours from collection time, put on a clean pair of gloves and insert both cards into their foil envelopes with the desiccant pack. Then place the top portion of the blood lab authorization form and both blood collection cards into the UPS mailing envelope.
- 17) Discard gloves and cardboard box.
- 18) Mail the envelope to Ann Arbor as soon as possible.

IWER: Record date and time of specimen collection in chart.

Specimen #	Date	Time
1		am/pm

Barcode Label

IWER: If you were not able to collect a blood sample record the reason in the box on the previous page.

[NI926] IWER: What, if any, problems occurred during the collection of the blood sample? (Circle all that apply)

- 1.....None
- 2.....R became light-headed, fainted, or nauseous
- 3.....R had difficulty getting finger to stop bleeding
- 4.....Unable to obtain enough blood
- 5.....Problem with equipment or supplies
- 97.....Other (Specify): _____

[NI928] IWER: Who pricked the R's finger(s)? (Circle one)

- 1.....R pricked own finger(s)
- 2.....IWER pricked R's finger(s)
- 3.....Both R and Iwer pricked R's finger(s)
- 4.....Someone else pricked R's finger(s) (Specify relationship to R): _____

[NI929] IWER: How many circles were filled on the first card? (Circle one) **0 1 2 3**

[NI945] IWER: How many circles were filled on the second card? (Circle one) **0 1 2 3**

[NI930] IWER: How many times did the R's finger need to be pricked in order to fill the cards? (Circle one)

- 1.....One time
- 2.....Two times
- 3.....Two times but the R was unable to fill all of the collection areas

[NI931] IWER: How compliant was R during this measurement? (Circle one)

- 1.....R was fully compliant
- 2.....R was prevented from fully complying due to illness, pain, or other symptoms or discomforts
- 3.....R was not fully compliant, but no obvious reason for this

“Thank you for your cooperation. This concludes the physical measure and biomarkers portion of the interview. Before we continue with the interview, I need a moment to enter a few pieces of information in the computer.”

IWER: Be sure to complete the checklist on the next page in this booklet. You will be prompted to enter some information now and scan the barcodes for the booklet, saliva and blood samples before you proceed with the interview. You will scan the saliva and blood barcode from the consent forms. Most of the information collected during the Physical Measures and Biomarkers will be entered after you have left the respondent's house.

PHYSICAL MEASURES & BIOMARKERS CHECKLIST

Saliva Collection:

- Remove the saliva barcode label from the Saliva Authorization Card and place it on the collection container
- Date and time of the collection is recorded on the Saliva Authorization Card

After sample is collected:

- Collection container is placed in plastic bag with the absorbent material
- Plastic bag is sealed, placed in bubble mailer
- Saliva Authorization Card is removed from booklet and placed in bubble mailer
- Sample is mailed as soon as possible (or refrigerated)

Blood Spot Collection:

- Barcode label from Blood Lab Authorization Forms is affixed to the bottom of the blood instruction page
- Date and time of the collection is recorded on the top portion of the Blood Authorization Form

After sample is collected:

- Blood collection cards are air dried for approximately 2 hours
- Blood collection cards are placed in their own foil envelope with desiccant pack and sealed
- Both foil envelopes and top portion of the Blood Lab Authorization Form are placed in the UPS Express Envelope
- Samples are mailed as soon as possible

Forms to Respondent:

- 1 copy of each of the 3 consent forms
- Health Assessment Pamphlet
- High Blood Pressure Card (if necessary)

Materials to mail to AA in Weekly Mailing:

- Physical Measures Booklet with signed consent forms
- Bottom portion of the Blood Authorization Form
- Completed transmittal form with the Physical Measures & Biomarker Booklet ID, Saliva Barcode ID and the Blood Barcode ID written in