PhenX Toolkit

Data Collection Worksheet

Please Note: The Data Collection Worksheet (DCW) is a tool to aid integration of a PhenX protocol into a study. The PhenX DCW is not designed to be a data collection instrument. Investigators will need to decide the best way to collect data for the PhenX protocol in their study. Variables captured in the DCW, along with variable names and unique PhenX variable identifiers, are included in the PhenX Data Dictionary (DD) files.

1. Has a doctor or nurse ever said that you have:

High blood pressure or hypertension?

1 [ ] No

2 [ ] Yes

8 [ ] Not Sure

If Yes:

At what age were you first told this? __ __

FOR WOMEN: Was this during pregnancy only?

1 [ ] No

2 [ ] Yes

2. Have you ever taken medication for hypertension/high blood pressure?

0 [ ] no

1 [ ] yes, now

2 [ ] yes, not now

9 [ ] unknown

If yes, then…

At what age did you begin taking medicine for this? __ __

99 [ ] unknown

3. BLOOD PRESSURE METHODS

This protocol, which was taken from the Coronary Artery Risk Development in Young Adults (CARDIA) Study, is written for use with the *Omron*® HEM907XL automated BP monitor. Special attention must be placed on assessment and maintenance of the instruments accuracy as per the manual that accompanies the instrument.

The design and operation of the *Omron*® HEM907XL are based upon the combined principles of compression of the brachial artery under an elastic, inflatable cuff and estimation of the systolic and diastolic BP levels by oscillimetric methods. The technician should place the correct size cuff on the participants arm, set the machine to **automatic**, set the mode button to **single**, and push the **start** button on the monitor, then wait for the output. All readings are to be recorded to the nearest digit.

3.1. Measurement Equipment

The following equipment will be required for BP and pulse measurement:

a. One *Omron*® HEM907XL automated BP monitor.

b. BP cuffs in four sizes: S, M, L, XL

c. One standard clinical mercury sphygmomanometer*

d. One clinical thigh cuff*

e. One *Gulick II* tape (or *Gulick II Plus*)

f. A chair with arm support for BP measurement, or a chair and table (table must provide for a comfortable resting posture of the arm with the cubital fossa at the level of the 4th intercostal space at heart level)

g. Form for recording BP and pulse

h. One black pen (marking on skin) and one No. 2 pencil (completing the form)

* used for arms >50 cm in circumference

3.2. Cuff Size Determination

The proper cuff size must be used to avoid under- or over-estimation of BP. Cuff size refers to the cuffs bladder, not the cloth. A copy of the chart below should be attached to the sphygmomanometer for easy reference. In addition, the cuffs must be HEM907 XL-compatible.

a. Cuff Size Indicated by Measured Arm Circumference

[[cardio_003_image002.jpg|Cuff Size Indicated by Measured Arm Circumference]]

b. Measurement of arm circumference. The participant should remove his/her upper garment, or clear the upper arm area so that an unencumbered measurement may be made. The technician should:

i. Have the participant stand, with the right arm hanging and bending the elbow so that the forearm is horizontal (parallel) to the floor.

ii. Measure arm length from the acromion (bony protuberance at the shoulder) to the olecranon (tip of the elbow), using the *Gulick II* anthropometric tape.

iii. Mark the midpoint on the dorsal surface of the arm.

iv. Have the participant relax arm along side of the body.

v. Draw the tape snugly around the arm at the midpoint mark.

NOTE: Tape should be horizontal and should not indent the skin.

vi. Noting the arm circumference indicated by the tape, use the criteria above for determining cuff size.

3.3. Wrapping the Blood Pressure Cuff Around the Arm

The technician should:

a. Ensure the participant is seated, legs uncrossed, in a quiet room, with the elbow and forearm resting comfortably on the armrest of the BP measurement chair (or table), with the palm of the hand turned upward. The area to which the cuff is to be applied must be bare (free of clothing).

[[cardio_003_image004.jpg|]]

b. Locate the brachial artery by palpation and mark the skin with a small dot, using a black pen. (The brachial artery is usually found just medial and superior to the cubital fossa, posterior to the biceps muscle and slightly toward the body.) For brachial artery palpation, fingertips or thumb may be used (see figure below).

[[cardio_003_image006.jpg|]]

c. Place the appropriate cuff around the upper right arm so that:

i. The midpoint of the length of the bladder lies over the brachial artery.

ii. The cubital fossa is at heart level.

NOTE: The midpoint of the length of the bladder should be confirmed by folding the bladder in two. The marking on the cuff should not be trusted.

d. Place the lower edge of the cuff, with its tubing connections, about 1 inch above the natural crease across the inner aspect of the elbow (the cubital fossa).

e. Wrap the cuff snugly about the arm, with the palm of the participants hand turned upward, making sure the long edges of the cuff lie on top of each other as the cuff is wrapped around.

[[cardio_003_image008.jpg|]]

f. Secure the wrapped cuff firmly by applying pressure to the locking fabric fastener over the area where it is applied to the cuff.

NOTE: The cuff should not be wrapped too tightly around the arm.

NOTE: If a thigh cuff is needed, the standard mercury sphygmomanometer is used to measure the BP systolic and diastolic pressures at the disappearance of Korotkoff sounds.

3.4. Setting the Mode and P-Set

The technician should:

a. Check that the AC adaptor is attached to the monitor and plug into electrical outlet.

[[cardio_003_image010.jpg|]]

b. Turn the ON/OFF button to **ON**.

[[cardio_003_image012.jpg|]]

c. Set the MODE selector to **SINGLE**.

[[cardio_003_image014.jpg|]]

d. Set the P-SET (inflation level) knob to **AUTO**.

[[cardio_003_image016.jpg|]]

e. Connect the air:

i. For cuff sizes small, medium and large, connect the air tube to the main unit by attaching the air plug to the base of the air connector.

ii. The extra large cuff has an air plug already connected. Attach this to the base of the monitor at the air connector.

[[cardio_003_image018.jpg|]]

3.5. Taking the First Blood Pressure Measurement

The technician should:

a. Have the participant sit quietly for a period of five minutes before the first BP is taken.

b. Push the **START** button on the monitor and wait for the output.

c. Record the systolic and diastolic BPs.

[[cardio_003_image020.jpg|]]

3.6. Taking the Second and Third Blood Pressure Measurements

The technician should:

a. Hold the participants arm vertical (without fist-clenching) for a full five seconds between each measurement

b. Wait 25 to 30 seconds between each measurement.

c. Repeat the steps described above to obtain the second and third BPs.

d. Record the systolic and diastolic BP.

Note: Omron® IntelliSense™ Blood Pressure Monitor Model HEM907XL is a registered trademark of OMRON Corporation

Diagnostic Criteria:

Hypertension in adults aged 18 years and older is defined by recorded blood pressures at or above an average of 140 mmHg systolic or 90 mmHg diastolic on two or more seated blood pressures, measured properly with well maintained equipment, at two or more visits to the office or clinic, or the prescription of one or more antihypertensive drugs for the purpose of blood pressure control. A diagnosis of prehypertension may also be used for similarly measured blood pressures with systolic pressures 120-139 mmHg or diastolic pressures of 80-89 mmHg when antihypertensive treatments are not taken.

This chart provides current diagnostic criteria as of August 2009.

	Systolic	Diastolic	Medications
Normal	<120	<80	No
Prehypertension	120-139	80-89	No
Hypertension	≥140	≥90	or Yes

Protocol source: https://www.phenxtoolkit.org/protocols/view/40301