

**GUIDELINES FOR AN APPLICATION OF THE AMBULATORY BLOOD PRESSURE  
MONITORING (ABPM)  
FOR REMOTE VISIT**

***Purpose***

This manual describes how the Research Assistant (RA) can instruct the participant for the ABPM data collection as a remote visit. Please refer to Section 8.5 of the MESA Exam 7 MOP for additional information about the 24-Hour ***ABPM***

***1. Recruiting and scheduling participants for the Ambulatory Blood Pressure Monitoring***

Please use this sample text when recruiting participants for the ABPM procedure:

*" We invite you to participate in the ABPM (Ambulatory Blood Pressure Monitor) data collection. This part of the MESA Sleep study investigates the effects of blood pressure patterns on heart disease and brain health. Blood pressure may vary a lot during the day and night—therefore, a single blood pressure measurement in the clinic alone may not tell us all we need to know about the level of blood pressure over the day and night. If you agree to participate, we will schedule another phone call to explain the procedure. We will send a package to your home with a blood pressure monitor and other supplies needed to apply the device. The blood pressure monitor will measure your blood pressure every 30 minutes over 24 hours. The procedure involves wearing a light blood pressure cuff and carrying a small box on your waist for 24 hours, including sleep. You will take it off to bathe or shower. The blood pressure monitor could be uncomfortable, and the blood pressure cuff will cause pressure when it inflates on your arm, like what you feel when your blood pressure is checked in the clinic. You will fill out a form to record your sleep times. After you return the blood pressure monitor, we will reimburse you for this part of the study. After the blood pressure information is analyzed, we will provide you with a report that you -and if you wish- your doctor can use to understand your day and night blood pressure. On the next call, we will show you how to apply the cuff, remove the cuff and device, and stop recording if needed. We will also show you how to carry it and sleep comfortably with it, and we will discuss how to return it. "*

***2. Call for scheduling the visit (it could happen at the time of recruitment). This could be a phone or video (preferable) visit***

- Explain to the participant what it is expected from him/her to do for the ABPM collection.
- Explain what material you will be shipping to their home.
- Set up an appointment with the participant to go over material and instructions when the mail arrives.
- Confirm with the participant what her/his non-dominant arm is.
- Ask the participant whether s/he prefers the belt or strap option to carry the device.

***3. Initialize the device (refer to Appendix B: Instructions for OnTrak ABPM Monitor in the Exam 7 MOP).***

- Start this process just before preparing the package to ship.

***4. Packing the ABPM kit (include the following) and then shipping the kit***

- Appropriate size cuff
  - o Cuff size should be determined using the MOP instructions. Use the arm circumference recorded during the clinic visit at Exam 7.

- The cuff bladder should be placed according to the non-dominant arm of the participant (refer to the MOP).
- Tubing and should be attached to the cuff.
- Tubing support clip (attached to tubing)
- Appropriate size disposable cuff cover (refer to the Exam 7 MOP)
- OnTrak device monitor
  - Attach belt or strap to carrying case
  - Insert batteries right before shipping
- China Marker (in a plastic bag)
- Mailer to return the device and equipment.
- Participant Instruction (Appendix A)
- One sheet of the Participant Diary

**5. *Instructions during the phone/video visit (previously scheduled)***

- Confirm with the participant that all pieces needed for the application are in the received packet.
- Provide the participant with instructions for applying the device (use Appendix A Participant Instruction of this MOP, at the end). Review all the important details of the monitoring process with the participant. This includes reminding them how to correctly place the monitoring device, the duration of the recording, instructions on how to wear the device while walking or sleeping, how to remove it for bathing, and other relevant information. It is preferable to help participants apply the device while RA is on the phone (during this visit). We strongly recommend a video visit.
- One sheet of the Participant Diary
- Instruct participants on how to return the kit (site-specific)
- Provide a phone number to contact the site.

**Instructing the Participant (for the RA):**

*The ABPM (Ambulatory Blood Pressure Monitor) will begin measuring your blood pressure after the cuff is placed and the monitor is powered on. It will record your blood pressure readings for the next 24 hours. During this time, you need to wear the ABPM device all day and night.*

*The ABPM (Ambulatory Blood Pressure Monitor) will begin measuring your blood pressure after the cuff is placed and the monitor is powered on.*

*For daytime readings, the monitor will beep before starting to inflate. Please sit down, if possible, and don't cross your legs. Place your arm at chest level and rest it. If you can't sit, try to stand still while the machine takes your blood pressure. While the cuff is inflating, please don't talk, eat or drink, and stay still for the few minutes it takes to complete the measurement. When the cuff gets tight and/or the tone sounds, remain still and keep your arm still until the cuff deflates. While wearing the monitor, check that the tubing from the cuff is not twisted or bent.*

*For nighttime readings, the monitor will not beep before inflating the cuff. To minimize sleep disruption from the noise, remove the device from the pouch, place it on a folded towel on the mattress and cover it with a pillow or towel to muffle the noise. If needed, you can also place the device on a side table or nightstand close to the bed (using a towel and pillow).*

*If the cuff does not deflate, remove it, turn off the monitor, let the cuff deflate, reattach the cuff, and turn the monitor back on by pressing the Action button for 3 seconds. If at any time the cuff becomes uncomfortable, press the Action button to stop the blood pressure reading. The cuff should deflate until the next scheduled reading time. Follow the instructions for powering off the device if you need to*

*temporarily suspend blood pressure readings to take a bath or shower. After your bath or shower, replace the cuff, and then press the Action button for 3 seconds to turn the monitor back on and resume readings. If you have problems replacing the cuff or it does not seem to be working, please call your clinic staff number.*

*Please wear the monitor until this time tomorrow. After that, you can take it off and place it in the box to pick up or mail back. Remember to turn the device off, or it will continue to try and inflate the cuff while in the shipping box. Put all the supplies, including the belt, strap, and monitor, in the box.*

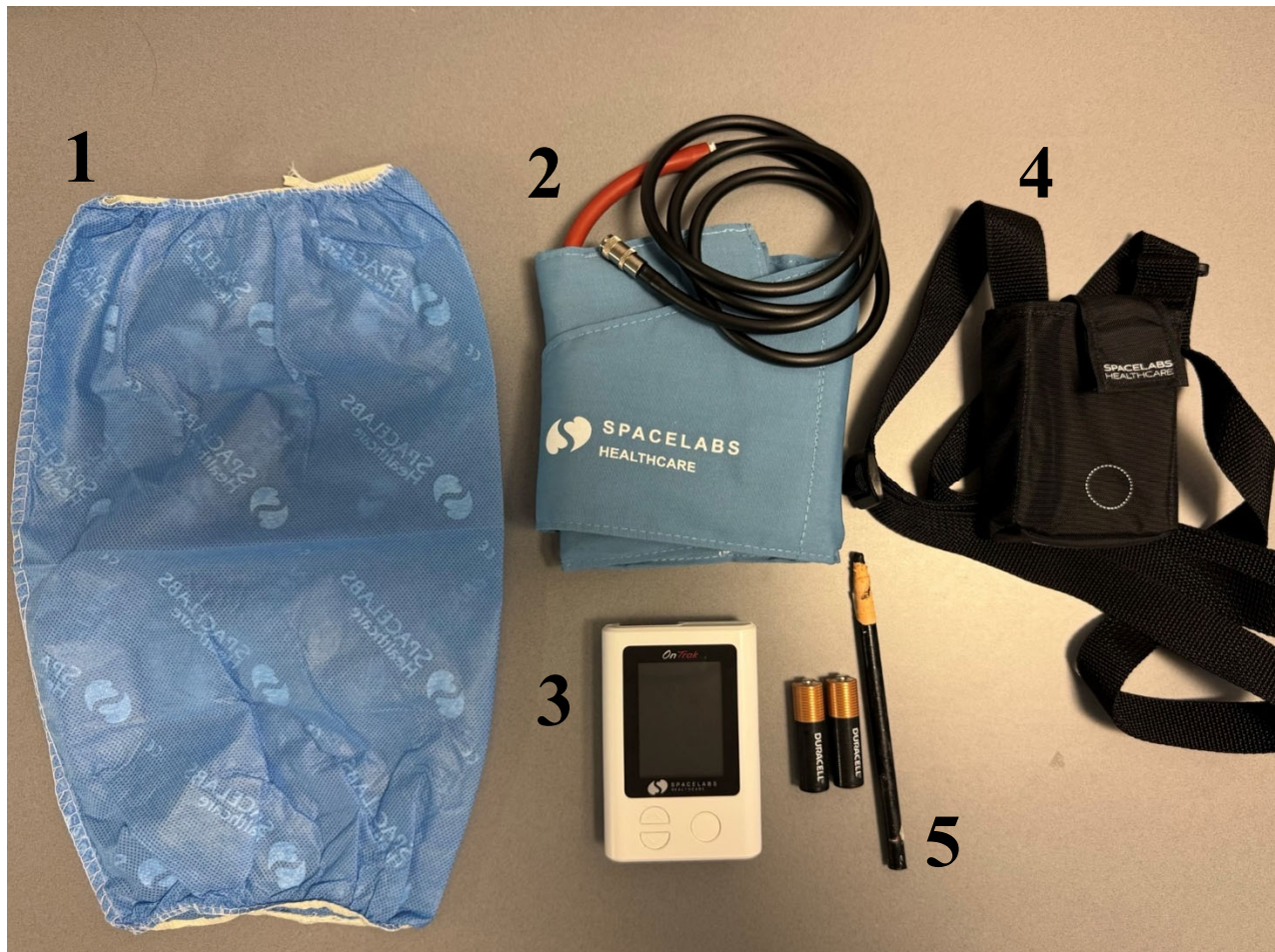
## Appendix A: Participant Instructions

### 24-hour Blood Pressure Monitoring Instructions

You will wear a blood pressure cuff for approximately 24 hours, from the time the cuff is placed, and data collection starts until one day later. The cuff will inflate about every 30 minutes. Please try not to remove the cuff during the 24-hour data collection. If you must remove the cuff, please follow the instructions for replacing the blood pressure cuff carefully.

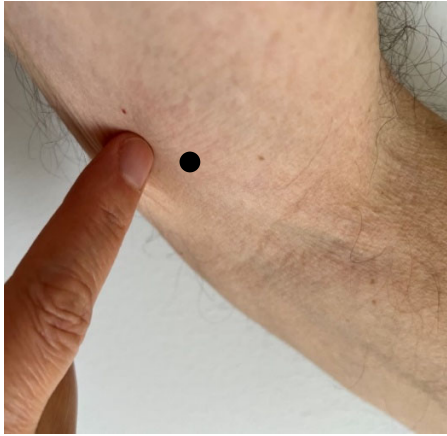
In this package, you should have received the items below:

1. Disposable cuff cover
2. Blood pressure cuff
3. Monitor
4. Carrying case
5. Marker





## Placing the cuff cover and blood pressure cuff



### *Locate the Brachial Artery*

The ABPM will measure blood pressure by sensation the pulsation of blood through your brachial artery.

With your inner elbow facing upward and bending it slightly, place your index and if possible, also your middle finger to palpate the pulse of your brachial artery. Where you find the pulse make a dot with the marker. This dot is as a landmark to place the cuff.



The cuff should be placed 2 cm above the crease in the elbow with tubing going toward the shoulder.

Point the arrow on the cuff toward the center of your arm near the bend inside of your elbow as shown in the image. This is how you will place the cuff.



### *Apply cuff cover*

Before placing the blood pressure cuff, put on the cuff cover. The cover and cuff will be applied to your ***non-dominant arm***.

1. Place your hand through the openings of the cuff cover and slide the cuff cover up your arm so it covers most of the upper arm and extends below the elbow.



*Apply the blood pressure cuff*

2. Hold your arm out with your palm facing up.
3. Wrap the cuff around your upper arm over the cover, placing it about 2 cm above your elbow crease. Make sure that the arrow on the cuff is pointing towards the dot on your arm, located at the bend over the brachial artery.
4. Secure the cuff with the Velcro. The cuff should be secured firmly but not too tight. You should be able to insert two fingers under the cuff. The arrow on the cuff should point towards the dot on your arm.
5. Bring the tubing behind your neck and down the other side of the front of your body toward the waist. Fold the lower half of the cuff cover up and over the cuff. The blood pressure cuff will now be fully wrapped inside the cuff cover as show in the below image.



6. Bring the tubing behind your neck and down the other side of the front of your body toward the waist.
7. Fold the lower half of the cuff cover up and over the cuff. The blood pressure cuff will now be fully wrapped inside the cuff cover as show in the image.

*Connect the cuff to the recording device*

1. Click the tubing into the monitor so you hear a click.



Connect blood pressure cuff tubing here

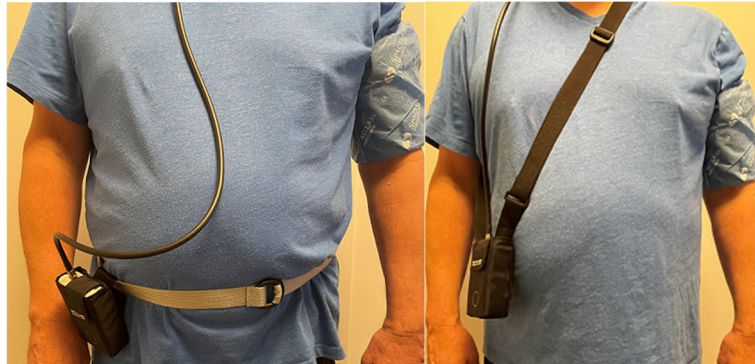
*Take a test reading*

1. Hold down the round Action button located on the front of the monitor for 3 seconds until a beep is heard. The monitor will switch on within 7 seconds.



### *Wear the monitor*

To wear the device on the grey belt to wear around your waist, secure the belt around your waist as shown in the image. It should fit securely but not uncomfortably tight. The belt is secured using the two black D-rings attached to the end of the belt.



To wear the device over the shoulder using the black shoulder strap, adjust the strap so the device is at a comfortable level near your waist and place the shoulder strap around your neck so that the device is worn on the opposite side of the blood pressure cuff.

### **To Power On (and Resume Readings):**

1. Have the cuff on your arm and if you remove it replace it following same instructions from above.
2. Press and hold the action button for 3 seconds to turn the unit back on. An audible beep will confirm the unit has powered on.
3. Wait approximately 10 seconds and then press the action button. The cuff will inflate, and the monitor will take a blood pressure reading.
4. The unit will automatically resume readings.
5. If the unit did not power on or would not take a blood pressure reading, please contact a study staff member for instructions.

### **Some tips while wearing the monitor:**

1. During the day, before the monitor starts to inflate, there will be a beep. Please sit down and don't cross your legs (if standing), place your arm at the level of your chest, and rest (don't talk during cuff inflation). At night, there will not be a beep before the monitor start to inflate.
2. When the cuff gets tight and/or the tone sounds, STAY STILL and KEEP YOUR ARM STILL until the cuff is loose again.
3. While wearing the monitor, check that the tubing from the cuff is not twisted or bent.
4. Treat the equipment gently. Please, no hard knocks, bumps, or drops.
5. Keep the equipment dry. Remove the cuff when showering or bathing.



6. Try not do to do heavy physical activity during the day you wear the monitor.
7. During sleep, take the monitor out of its pouch, place on a folded towel, and cover the monitor with a pillow or towel (to muffle the sound). You may place the monitor under a pillow or at the side of the bed.

### **Stopping a Reading or Pausing Readings:**

If at any time the cuff does not deflate or becomes uncomfortable, press the Action button to stop the blood pressure reading. The cuff should deflate until the next scheduled reading time. If the cuff does not deflate, remove the cuff, and follow the instructions to power off the monitor. The following steps should also be used if you need to temporarily suspend blood pressure readings for the purposes of taking a bath or shower.

### **To Power Off:**

1. Press and hold the Action button for 3 seconds.
2. A message will appear on the monitor display asking you to confirm your decision to power the unit off.
3. Press the Down arrow button once to highlight the “Yes” option.
4. Press the Action button once to confirm the selection, and the unit will shut down. Wait for the cuff to deflate.

**Remember:** We want **awake and asleep** blood pressure measurements, so it is important to wear the monitor for **24 hours**. **HOWEVER, do not wear the unit into the bath or shower. Follow the instructions for suspending readings, and please remember to put the monitor back on after your bath or shower.**

When you are finished wearing the monitor, take it off and follow the instructions to power it off. Then, follow the instructions provided by the study staff to return it.

**Please return the monitor, cuff, carrying case, diary, and marker.**