

## Glasgow Clinical Trials Unit Standard Operating Procedure

SOP number	<b>17.026</b>	Version	<b>4.0</b>
Title	<b>Use of Ambulatory Blood Pressure Monitoring Machines</b>		

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	Nursing	X			
	Principal Investigator	X			
	Clinical Research Fellow	X			
	GCRF Manager		X		
	GCRF Associate Director				X
Senior R&I Manager				X	

### 1. Scope

This procedure applies to all staff working within Glasgow Clinical Research Facility (GCRF).

### 2. Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe the procedure for the use of ambulatory blood pressure monitoring equipment.

### 3. Procedures

Ambulatory blood pressure (ABP) monitoring is a diagnostic tool to measure Blood Pressure (BP) over a prolonged period. The information recorded takes into consideration any physical activities undertaken whilst the monitor is in place. Each ABP monitor will be programmed to record BP over a period of 24 hours at pre-set intervals defined by the study protocol.

#### 3.1. Equipment

- ABP monitor
- ABP cuff (of an appropriate size)
- ABP carry strap and pouch
- Patient Information Leaflet
- 4 AA batteries (if required)
- Tape measure

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- Activity diary/log book (if required)

### 3.2. Initialisation of ABP Monitors

ABP monitor must be initialised as per SOP 17.025 prior to applying BP cuff to the patient to ensure that any data collected is correctly labeled with the particular patient and study identifiers.

### 3.3. ABP Cuff Selection and Fitting

To ensure accuracy of blood pressure measurements, proper cuff selection and application is essential. In order to select the proper cuff size, the limb should be measured at the point where the cuff is to be applied and the most appropriate size selected from the table below.

Limb Circumference	Cuff Size
17 – 26 cm	Small
24 – 32 cm	Average
32 – 42 cm	Large
38 - 50	Extra Large

- The cuff should be secured around the participant's non-dominant arm by the Velcro fastenings. Position the centre of the bladder over the brachial artery – the cuff displays an arrow, or the wording "**ART**" to assist with correct placement. The attached rubber tube should be running upward and over the shoulder toward the back of the patient.
- Position the lower edge of the cuff so it sits 2-3cm above the pulse point of the brachial artery; not so tight that it impairs blood circulation or so loose that it twists around or drops out of alignment.

### 3.4. ABP Measurement

Once the ABP monitor cuff has been applied:

- Switch the monitor on using the on/off switch.
- Press the start/stop button – a blood pressure measurement will then be taken.
- Start machine to commence automatic recordings as programmed.

The participant will be shown how to apply and align the cuff and provided with an information sheet (Appendix 1: Patient Information Leaflet: 24 hour ABP monitoring). This will enable them to reposition the cuff at home if it becomes misaligned. Although removing the cuff should be actively discouraged, advice on how to remove and reapply the cuff for personal hygiene requirements should be given.

The cuff should be worn for the entire 24 hour period and the participant will be advised to continue his/her usual daily routine, avoiding strenuous exercise. Depending on study protocol, they may be asked to complete a daily activity diary.

### 3.5. Return of ABP Monitor

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After the required recording time period, the monitor and all accessories should be returned to the study centre, where the study staff will download the recordings as per manufacturer's instructions.

### 3.6. Abnormal Results

If any abnormal results are found, firstly review with patient to establish cause, for example, episode of exercise/stress during monitored period. Act accordingly within protocol guidelines. Inform Investigator for medical advice and to establish if further action is required.

## 4. Referenced documents

- SOP 17.025 – Initialising the 24 hour BP monitor

## 5. Related documents

- Spacelabs Medical, Inc Instruction manual Model number 90207/90217
- Delmar Reynolds Instruction Manual

## 6. Document history

Version	Date	Description
1.0	23/02/2012	First Version
2.0	15/07/2016	SOP restructure Updated to template version 1.4. Minor admin changes Change to approved and released by
3.0	18/12/2018	Addition of section 5.6
4.0	18/08/2023	Update to SOP template v2.0 Addition of RACI matrix

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Appendix 1

PATIENT INFORMATION LEAFLET

24 HOUR AMBULATORY BLOOD PRESSURE (ABP) MONITORING

**What is ambulatory Blood Pressure?**

Ambulatory blood pressure means blood pressure (BP) measurements taken over a 24 hour period whilst undertaking usual daily activities.

The ABP monitor should be worn for a 24 hour time period prior to your appointment - i.e.: if your appointment is at 3pm on a Tuesday, you should start the monitoring on the Monday morning so that the monitor and accessories can be returned during your appointment).

If the monitor and cuff are supplied during your appointment, you will be shown how to attach them. If the monitor and cuff are given to you prior to your appointment, you should follow the instructions below to set up the recordings.

**Instructions for attachment:**

1. Strap the monitor around your hip – the monitor fits snugly into the pouch provided and can be attached using the belt strap provided or your own belt. You should position the monitor on the hip opposite to the arm being used for the blood pressure cuff.
2. Place the cuff around your preferred arm – usually the non-dominant arm. The mark on the cuff (ART ↓) should be placed on the inside of your upper arm, roughly in the middle, pointing towards your hand. The cuff should be at about the same level as your heart. The cuff should be snug at the bottom and top edges. You should be able to fit a finger in between the cuff and your arm.
3. Lead the rubber tubing from the top of the cuff, up the arm and across the back of your neck and down towards the monitor making sure the tubing is not kinked. Connect the tubing to the monitor.
4. Switch the monitor on, moving the small black switch near the battery compartment from the **o** position, to the **⊞** position. The screen on top will flash. Once the screen on top has stopped flashing, it will show the time. When this appears, please press the **blue** button beside the screen. The screen will then count down from 5 before taking a blood pressure reading.
5. Once you are satisfied that the monitor is working (i.e. an appropriate blood pressure reading has shown up on the screen), press the **blue** key twice. The monitor should now work automatically for the next 24 hours.

Your blood pressure will be recorded frequently during the day (usually around every 15 minutes) and less often at night (usually around every half an hour). Each time a reading is taken, it will flash on the screen a number of times – you do not need to take note of this as it will be stored automatically. For certain research purposes the reading may not appear on the screen – this is not something to worry about.

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### What do I need to do whilst I am wearing the Blood Pressure recorder?

Keep to your normal daily routine.

You may be asked to keep a diary or activity log while you are wearing the monitor. If so, please note the time on the monitor that the first automatic measurement is taken, the activity you are doing at the time and when you take your medications. After this, you need only take note of any change in activity (i.e., work to leisure).

#### Tips:

- If you experience any symptoms in between readings, press the blue button on the monitor and an additional reading will be taken. Note this time in your diary or log. Readings will then continue as normal.
- If you wish to stop a reading in progress, just press the blue button.
- When you feel the measurement being taken, try to relax your arm by your side as this ensures the most accurate measurement.
- If the cuff requires re-positioning, please follow the instructions for attachment above. Do not switch off the monitor during this.

#### Please Do Not:

- Flip the black switch beside the battery compartment. This will turn the monitor off. It should only be turned off in an emergency or at the very end of the monitoring period.
- Get the monitor wet. However, if it does get wet, there is no electrical shock hazard.
- Worry if the monitor cannot take a reading each time it cycles. If this happens, please stay as still as possible. It will attempt to take another recording within 60 seconds. If it fails a second time, a code will be registered on the monitor. The cycle should then continue as normal.

### What happens next?

Please bring the cuff, monitor and diary/log in to your appointment with you.

The recordings and the diary will be analyzed by medical staff and you will be told if any further action is required.

### Contact Information

If you have any questions while you are wearing the Blood Pressure monitor, please do not hesitate to contact the research staff at Glasgow Clinical Research Facility on **0141 232 7600/0141 211 6800**. It will be helpful if you know the name of the study you are taking part in or the name of the doctor or nurse that has discussed the monitor with you.