LRI Children's Hospital

Issuing of an Ambulatory Blood Pressure Monitor

Staff relevant to:	Clinical staff working within the UHL Children's Hospital
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1. Introduction and who this standard operating procedure (SOP) applies to

Ambulatory blood pressure monitoring (AMBP) is the measuring of blood pressure as the patient moves around, living their normal daily life. It is measured for up to 24 hours. By measuring blood pressure at regular intervals up to 24 hours, can get a clear idea of how blood pressure changes throughout the day. This SOP should be used in conjunction with the overarching Hypertension UHL Childrens Medical Guideline

There are a number of indications;

- To establish diagnosis of hypertension
- To identify patients who have higher blood pressure readings when in the clinic (known as 'white coat effect')
- To help decide if blood medication is required
- To help decide whether any changes to your medication is required
- To further investigate people whose blood pressure is hard to control
- To see if it is safe to start new medication for example ADHD medication

For all staff will be carrying out ambulatory blood pressure monitoring on children.

- To ensure that all staff are aware of the correct procedure for performing the fitting of an Ambulatory Blood Pressure Monitor (AMBP).
- To document the procedure of performing the fitting of an Ambulatory Blood

Pressure Monitor.

- To ensure the protocol is standardised.

2. Standards and Procedures

Pre-test procedure

Ensure you have the following;

- AMBP monitor (with new batteries)
- Range of cuff sizes, suitable for both arms
- Tape measure
- Belt/shoulder harness
- Pouch for monitor
- Patient AMBP instruction leaflet (including patient diary)
- Equipment loan form

Procedure protocol for performing ambulatory blood pressure monitoring

- Check the correct patient details and ensure that the patient has attended for the correct procedure.
- Determine the patients understanding of the appointment, and explain that the monitor is to be returned the following day (or a return has been pre-agreed and documented). If this is not possible, do not issue the equipment.
- Explain the procedure to the patient.
- Login to Sentinel software and initialise the monitor according to the manufacturer's instructions, checking and adjusting the patients sleeping pattern if this is significantly different.
- Ensure that the cycling times are pre-set to:
    - Every **20 minutes** during the hours of 7am – 10pm
    - Every **30 minutes** during the hours of 10pm – 7am
- Ensure that the monitor is set to **clinical verification** so that the measured values will not be displayed after the first 4 measurements.
- Ask the patient to remove his/her outer top-half clothing only (not underwear), and measure the circumference of both arms (half way between tip of shoulder and elbow with arm in a natural relaxed position).

- Fit an appropriately sized cuff to the non-dominant arm, lining up the arrow on the cuff to the brachial artery, and applying the cuff Velcro until it is firmly fitted. Check no pinching of patient's skin.
- Attach tubing to monitor and switch monitor on. Show the patient the on/off switch and explain the display screen.
- Measure blood pressure twice on the non-dominant arm and once on the dominant arm.
- Replace cuff on non-dominant arm unless there is a ≥10/10 mmHg difference between arms (in which case use the arm with the higher reading), or where there is a clinical reason not to use a particular arm.
- Finally, measure blood pressure standing with arm supported (wait 2 minutes before taking measurement) Detach tubing from monitor.
- Wind tubing around the back of the patient's neck and down his/her front (in females, tubing should sit above the bra but beneath all other clothing). If using an additional shoulder harness, route the harness under all clothing.
- As you are fitting the cuff, explain about the positioning and how to adjust the cuff if it moves. Draw a line and arrow to indicate positioning on patient's arm.
- Attach the pouch to the belt and fit to the patient's waist. Explain how patient may adjust belt if it becomes too loose/tight. Place monitor in the pouch and re-connect tubing. Ask the patient to dress.
- Perform another blood pressure reading to ensure that the monitor is working correctly now that it is fully fitted to the patient.
- If the patient's blood pressure is consistently above the 95th centile +12mm for their age then they ought to be seen by the renal consultant of the day.

If an error occurs whilst taking the readings, check for the corresponding code in the ABMP manual. Also check that the batteries are working.

An error may occur:

- If the blood pressure is very high or very low.
- If the heart beat is irregular.
- If the patient is obese, the monitor may struggle to detect the artery. Also the monitor's battery life may be compromised if the cuff takes considerably longer to inflate.
- If the cuff or monitor is faulty.
- Other reasons as per manufacturer's checklist.

Explanation to the patient/carer

- Explain that the monitor will attempt to take a blood pressure reading at set intervals throughout the 24 hour period. Inform the patient of the time periods.
- Explain that the monitor will only beep during the day. One single beep will be heard, which gives a 5 second warning that the cuff is due to inflate. The cuff will then become tight on the upper arm.
- Explain that the cuff will gradually begin to deflate and if the reading is successful, a single beep will be heard.
- Explain that the patient must not talk or move during the measurement and that they should relax their arm by their side or on their lap (if sitting down) for the duration of the reading.
- Advise that if the first reading is unsuccessful, the monitor will emit multiple beeps and will attempt a second reading 2 minutes later.
- It may be unsuccessful for no apparent reason but ensure that the patient understands how to check that the cuff is in the correct position, and can check that the tubing is not kinked or detached.
- When wearing the monitor at night, explain that the patient must keep the belt and monitor fastened around their waist. The monitor pouch may be moved to a more comfortable position but explain that it is still important to check that the tubing is not kinked or detached.
- Talk through the instruction sheet with the patient, including the diary, and explain what must be completed.
- Explain that they must not shower, allows the monitor to get wet during the 24 hour period.
- Explain when and how the patient/carer should remove the monitor and how to turn it off at home.
- Ask the patient/carer to document their bedtime and the time they woke up and to complete the patient diary in the 24 Hour Ambulatory Blood Pressure Monitoring leaflet (to include when medication and any strenuous activity was undertaken).
- Give the patient/carer a clearly addressed jiffy bag and ask them to return the monitor, cuff and completed leaflet to Children's Day Care Unit, Level 4 Windsor Building, Leicester Royal Infirmary, the following day at the agreed time.

- Explain if any issues are encountered during the 24 hour period to contact renal secretaries between 0900-1500 Monday to Friday for advice.

3. Education and Training

Staff must receive relevant training to perform the fitting of an Ambulatory Blood Pressure Monitor

4. Monitoring Compliance

None

5. Supporting References

UHL The issuing of an ambulatory blood pressure monitor Clinical Standard Operating Procedure (SOP) UHLRPU/SOP/BP01

Hypertension UHL Childrens Medical Guideline Trust ref: E8/2020

6. Key Words

Ambulatory blood pressure monitor, AMBP, Hypertension

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

Contact and review details	
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Details of Changes made during review: No Changes	