NHS Tayside

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Women, Children & Families

**Standard Operating Procedure**

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| --- | --- | --- | --- | --- | --- | --- |
| **Title:** |  | **HOME BP & URINALYSIS MONITORING IN MATERNITY CARE** | | | | |
|  |  |  |  |  |  |  |
| **Purpose:** |  | **Aim**  To safely reduce face to face consultations for pregnant and postnatal women with, or who are at risk of, hypertensive disorders, or who are ‘shielding’, without increasing maternal and perinatal morbidity.  Practitioners should refer to the embedded SG guidance for further information. | | | | |
|  |  |  |  |  |  |  |
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**INTRODUCTION – Why is home blood pressure/urinalysis monitoring for pregnant women being rolled out within NHS Tayside?**

Raised blood pressure (BP) affects approximately 10% of pregnancies worldwide; almost half of these women develop pre-eclampsia. Globally, around 15% of maternal mortality is due to pre-eclampsia so early detection and prevention are paramount.

The COVID-19 pandemic has required the NHS to urgently consider self-monitoring of BP at home by pregnant women in order to safely reduce the number of face-to-face consultations for pregnant and postnatal women.

Self-monitoring of BP at home by pregnant women can either be used to replace measurement of blood pressure by a healthcare professional on the day of a scheduled clinic (i.e. intermittently) or can be done routinely and more frequently by pregnant women (e.g. daily or weekly) in addition to usual care.

Service evaluations have been carried out examining its use and the results of trialing this intervention in over 2,400 normotensive women and 600 hypertensive women are expected later in 2020. No concerns have been raised to date over safety (RCOG – Self Monitoring of Blood Pressure in Pregnancy, March 2020).

Self-monitoring of blood pressure by pregnant women allows for multiple measurements providing a better estimate of the underlying blood pressure than intermittent clinic measurements. Self-monitoring in pregnancy could improve the detection and subsequent management of gestational hypertensive disorders including pre-eclampsia, while also increasing convenience, empowering and engaging women in their own care and adherence to medication.

Self-monitoring is easy to accomplish and is now commonplace in adults with hypertension outside of pregnancy.

**Criteria for HPBM NHS Tayside maternity services**

**Phase 1 June 2020 –end August 2020**

‘High Risk’ Women, typically diagnosed with

* Chronic Hypertension
* Current Gestational Hypertension (Pregnancy Induced Hypertension, PIH)
* Current Pre- eclampsia
* Women who have been advised to ‘shield’ because of underlying serious underlying medical conditions including: • Cystic fibrosis

• Solid organ transplant

• Cardiac conditions

Awareness of women at particular risk of COVID-19 inclusive of women from the BAME community, women with increased BMI, over the age of 35 years and/ or have pre existing co morbidities (UKOSS report 2020).

**Phase 2**

* ‘Increased risk’ of developing Pre-eclampsia
* Hypertensive disease during a previous pregnancy
* Chronic Kidney disease
* Autoimmune disease (eg SLE/ Antiphospholipid syndrome)
* \*\*Type 1/ Type 2 Diabetes
* \*\*Multiple pregnancy

**Phase 3**

• Type 1 or Type 2 Diabetes

• Multiple pregnancy

**Eligibility Criteria**

All women being considered for home blood pressure monitoring must fulfil the following clinical inclusion and exclusion criteria:

**Inclusion criteria**

• Systolic BP range ≤150 mmHg

• Diastolic BP range ≤100 mmHg

• Proteinuria ≤ 1+ on urine dipstick

• Normal full blood count, liver and renal function blood tests as baseline and when new proteinuria present

**Exclusion criteria**

* Systolic BP range >150 mmHg
* Diastolic BP >100 mmHg
* Proteinuria ≥ 2+ on urine dipstick
* Symptoms of headaches, visual symptoms, epigastric pain
* Significant mental health concerns
* Women who decline the offer of HBPM
* Women who are not capable of giving informed consent
* Women who are not able to operate home blood pressure equipment
* Fetal growth restriction Eligibility should be considered on an individual basis for each woman, and in context of other pregnancy care guidance.

NHS Tayside maternity services will use either Florence or BadgerNet to record home BP/urinalyses measurements and each maternity clinician will discuss whether the woman has sufficient digital literacy, data/internet and devices to participate. If this is not the case we will ensure that we provide alternative support with these issues.

**Pathway of care for Home BP/urinalysis monitoring**

1. Arrange for a woman to attend face to face appointment in the maternity assessment unit (Ninewells ANC, Arbroath CMU or Perth CMU).
2. Ask her to bring her mobile phone with her to the appointment and a bag suitable to carry equipment home in.
3. Eligibility to participate in self monitoring of blood pressure and urinalysis will occur prior to referral onto the HBPM pathway of care ( See Criteria Pgs 2-3).
4. Ensure maternal contact details are up to date on TRAK, PROTOS/BadgerNet
5. Provide an NHS BP monitoring device and an appropriately sized cuff (check upper arm measurement). In some cases, proxy measures may be taken from the forearm, all devices validated for use in pregnancy.
6. Complete a blood pressure monitor loan form with the woman, ensuring the BP monitor (asset) is appropriately labelled and tracked and informed consent is given (Appendix 3)
7. **Instruction/teaching for women**

* Give written instructions on how to take a blood pressure reading (patient information leaflet) and signpost the link to the short video: British Heart Foundation - How to take your own blood pressure.
* Use teach-back to show the woman how to take her own blood pressure, write down and interpret her results. (Appendix 8 Teach Back questions)
* Ask the woman to take her blood pressure by herself twice, at least one minute apart, to demonstrate understanding.
* Give written instructions on how to self-monitor for proteinuria and glycosuria (patient information leaflet).
* Use teach-back to ensure the woman understands how to use the test and where and how to record her results (Appendix 8).
* Give written instructions on expected frequency of blood pressure monitoring and urinalysis. Women will be asked to take their BP \* a week depending on the level of care required. Plan of care to devised between woman and clinician. Prompts will then be set and se the text message service ‘Florence’.
* Ensure that the woman understands how ‘Florence’ works and how to send BP/urinalysis measurements through this system before she leaves the clinic. Use teach-back to show her where and how to record her results. In addition, provide a paper blood pressure recording diary and show her how to use it (Appendix 5).

**Note to staff**: Glycosuria detected by routine antenatal testing. Be aware that glycosuria of 2+ or above on 1 occasion or of 1+ or above on 2 or more occasions detected by reagent strip testing during routine antenatal care may indicate undiagnosed gestational diabetes. If this is observed, consider further testing to exclude gestational diabetes.’

1. Make clear home-readings will not be reviewed by a healthcare professional remotely unless it is before a pre-organised clinic appointment or virtual contact. However, ensure she understands to contact Maternity traige on 01382 632075 if she is concerned about a reading.
2. If a woman requires additional investigations / appointments (e.g. growth scan, obstetric clinic follow-up etc) these will be arranged by the woman’s midwives or obstetrician.
3. Please advise the woman it is vital that they follow the written instructions and phone the hospital contact number (Maternity traige on 01382 632075) if they develop raised blood pressure, new proteinuria, increasing proteinuria, or new symptoms. Suggested interpretation of blood pressure testing and urinalysis is included in Appendix 5&6. Individualisation of care remains the cornerstone of safe management.
4. Book the next appointment with the woman and discuss whether this will be telephone, NearMe or face-to-face. Suggested follow-up will vary on a case by case basis but typical patterns will include:

• essential hypertension – virtual follow-up monthly

• pregnancy induced hypertension virtual follow-up 1-2 weekly

• mild/ well pre-eclampsia- once a week virtual once a week face-to-face 13.

1. Inform GP that the woman is undertaking home blood pressure monitoring (Appendix 4).
2. Explain the arrangements to the woman for the return of the blood pressure monitor (to be returned to the department of issue ieMAU in NWH, Angus CMU or Perth CMU). BP machines will then be logged out of equipment log by staff member receiving equipment.
3. Once returned, wipe the blood pressure monitor and cuff thoroughly with a universal disinfectant wipe and allow to dry prior to storage or reissue – in line with manufacturer’s instructions and covid-19-guidance-for-domiciliary-care. Please note: monitors not suitable for use with universal disinfectant wipes, such as Microlife monitors, must be restricted to single-use to comply with covid-19- guidance-for-domiciliary-care.
4. BP Monitors will be then be sent to Medical Physics department for testing and then returned to the MAU.

# Appendix 1: Clinical Pathway



Arrange attendance to coincide with other appointment(s) (eg scan to minimise attendance). Complete clinical assessment and confirm all inclusion & exclusion criteria are met.

Demostrate use of BP and urine sticks using 'teach back' technique. Review patient information leaflet for BP & Uninalysis. Ask the woman to take her blood pressure twice, at least one minute apart and enter the result either by text, into notes or electronically (refer to Florence or Badger guidance)

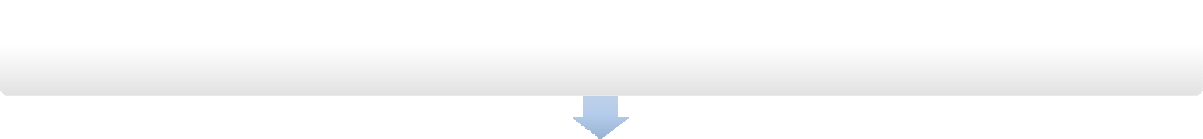
Woman identified as meeting criteria for remote monitoring at referral, booking, during antenatal or postnatal period.

Confirm contact information: mobile number, email update maternal record

Provide woman with BP monitor and cuff (check upper arm measurement) and complete consent form. Ensure monitor is labelled with asset number, name of unit and contact details and is appropriately tracked. Provide urinalysis sticks



Explain how to return the BP monitor postnatally to the Maternity Assessment Unit



Ensure Florence (for pregnancy blood pressure monitoring) is set up, check she is able to log in and ask her to demonstrate sending a blood pressure reading before leaving the unit. Make clear the readings will NOT be reviewed by a healthcare professional remotely unless it is before an organised clinic appointment whilst at home.

Give written instructions (patient information leaflet) about interpreting blood pressure readings and urinalysis. Check she understands how to use equipment and who to contact with an abnormal reading

Give written instructions on expected frequency of BP monitoring and whether this will replace or be in addition to usual plan of care.

Book the next appointment with woman: face to face, 'Near Me' or phone

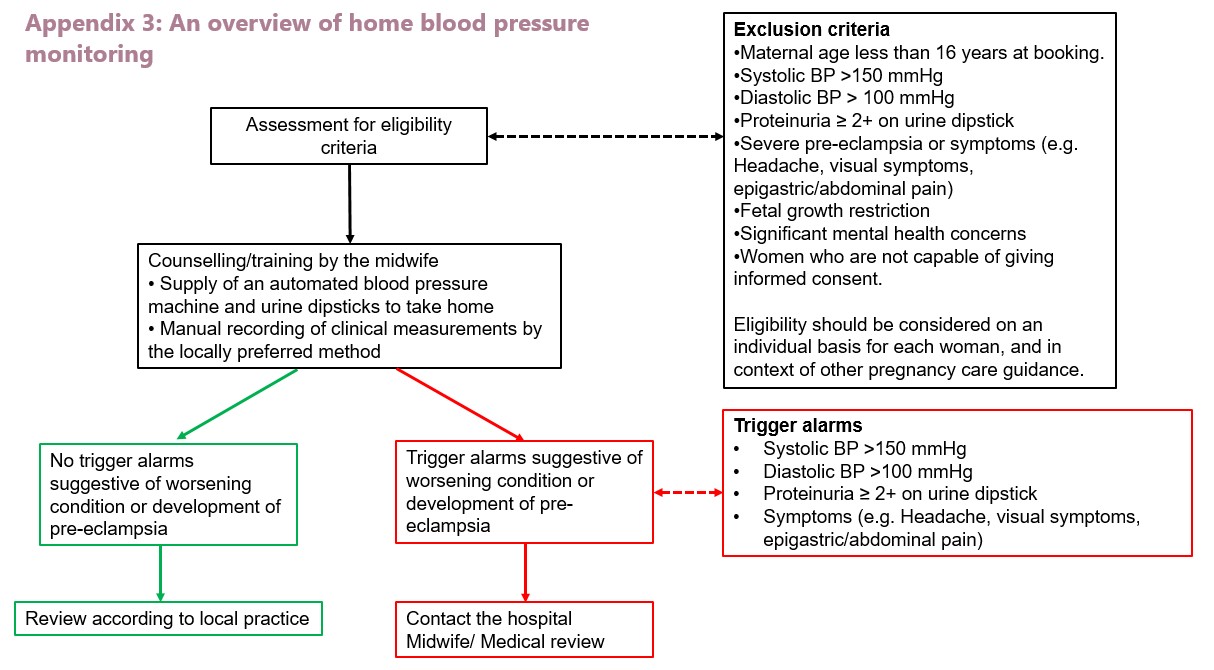
PLEASE INFORM THE WOMAN IT IS VITAL SHE FOLLOWS THE WRITTEN INSTRUCTIONS AND PHONES THE MATERNITY ASSESSMENT UNIT IF HER BP IS RAISED, NEW PROTEINURIA/ INCREASING PROTEINURIA OR SYMPTOMS



**Suggested Follow up**

Essential Hypertension: - virtual follow up monthly Pregnancy Induced Hypertension: - weekly

Mild pre-eclampsia: - twice weekly; once face to face and once virtual

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**Appendix 2: An overview of home blood pressure monitoring**

**Appendix 3: Maternity Services, Blood pressure equipment loan contract**

Name:

CHI:

Address:

Mobile No:

Email address:

GP surgery:

Health Visitor:

Alternative contact name:

Alternative contact number:

Blood pressure serial number: .....................................

Medical Physics number: ......................................

Cuff size: ......................................

Date of loan .....................................

**Declaration: (please initial all boxes)**

I accept responsibility for the above equipment and understand I have been asked to monitor my blood pressure through pregnancy and after my baby is born.

I agree to seek advice and contact the Maternity Assessment Unit if my blood pressure reading meets the criteria according to the information leaflet

I will return the blood pressure monitor when requested.

If the blood pressure monitor becomes damaged, lost or stolen, I understand that I must report this information to the Maternity Assessment Unit on the below number and that I am not responsible for the cost of replacement or repair.

I give permission for my data to be used for evaluation of the Home Blood pressure monitoring service.

|  |  |
| --- | --- |
| Please print name: | |
| Signature of agreement to conditions: | |
| Staff name and designation: | |
| Staff signature: | |
| **BP equipment returned by:**  signature | **Date:** | |
| **Received by:**  ***signature*** | **Date:** | |

Please copy and give one copy to the woman and retain one copy in the Service folder.

**Appendix 4: Communication to woman’s GP**

Dear Doctor,

Re:

Name:

CHI:

EDD:

Address:

The above patient has been commenced on Home Blood pressure monitoring.

(M4 Intelli (HEM-7155T-EBK) monitor with serial number -..............................)

Device has been loaned out to her for the duration of pregnancy and postnatal period.

Has been advised to take Aspirin at 150mg at night from 12 weeks until delivery/.........weeks gestation\*. Contra indications would include severe asthma, stomach ulcers or known allergy to Aspirin.

Kind regards

The Maternity Assessment Team

Maternity assessment Unit

(Ninewells Hospital / Community Midwifery Unit, PRI / Angus Birth Unit, Arbroath \*)

(\* delete as appropriate)

**Appendix 5: Home BP recording diary**

**Please write down the blood pressure readings in the table provided.**

Name:

DOB:

CHI:

**HOME BLOOD PRESSURE DIARY**

Target blood pressure: ........../ .............

Arm used: Left Right

Please monitor and record your blood pressure at home as you have been instructed ( see Patient Information leaflet in Home monitoring pack). On each occasion take a minimum of 2 readings at least one minute apart. Please record the second of these readings. Sit on a chair with your back supported and both feet on the ground. Sit quietly for 5 minutes before beginning to check your blood pressure.

Use the table below to record your blood pressure readings. The numbers you write down should be the same as appear on your screen. Do not round the numbers up or down.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DATE** | **TIME** | **SYSTOLIC BP** (top number) | **DIASTOLIC BP** ( bottom number) | **NOTES** (eg. Medication changes) |
| Eg. 06/03/20 | 0945 | 134 | 83 | No medication |
|  |  |  |  |  |
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**Appendix 6: Home urinalysis information sheet**

**Home urine monitoring.**

You have been asked to test your urine for protein as part of your screening for pre-eclampsia.

You have been given sample bottles and automated-reagent strips to do this.

It is important the sample tested IS NOT your first void of the day.

How to test your urine sample for protein?

1. Pass urine (not the first sample of the day) into the sample bottle.
2. Remove testing strip from the container (avoid touching the testing zones).
3. Insert strip into urine sample (ensure all test zones are immersed)
4. Remove the strip, tapping off residual urine on the side of the sample bottle.
5. Hold the strip horizontally.
6. Wait for 1 minute before reading the result.
7. Record the result from the colour square matching the test result, results possibilities are
   1. Negative
   2. Trace
   3. +
   4. ++
   5. +++
   6. ++++





# Appendix 7: How to Interpret Home Monitoring – Advice for Health Care Professionals

|  |  |  |
| --- | --- | --- |
| **Condition** | **Results of home monitoring** | **Proposed Actions** |
| New PIH or Ess HT without proteinuria (<1+ protein)  No symptoms | BP under control i.e. <140/90 | Consider:  Monthly review in Ess. HT without proteinuria (< 1+ protein)  1-2 weekly review in PIH with <1+ protein  USS for fetal growth as per hospital practice. |
| Systolic ≥ 140 and <150mmHg and / or diastolic blood pressure ≥ 90 and <100mmHg  on 2 readings 5 mins apart | Recheck blood pressure in 30 mins and contact day assessment unit  Start or increase antihypertensive medication with repeat monitoring within 24-48 hours. |
| Systolic ≥150 mmHg/ Diastolic  ≥100mmHg | Arrange for same day hospital assessment.  (aim for within 4 hrs) |
| New or pre-existing hypertension with proteinuria (≥1+ protein) after 20 weeks | Systolic ≥140mmHg and/or diastolic  ≥90 mmHg and/or new proteinuria  ≥1+ | Arrange immediate review at Maternity Assessment Unit |
| New proteinuria without hypertension after 20 weeks (gestational proteinuria) | ≥1+ Protein | Repeat urinalysis in community in 1 week.  If ≥1+ proteinuria persists, send PCR / MSSU and review following week  If PCR negative <30mg/mmol continue with weekly assessment.  If PCR(>/=30mg/mmol) is raised, Maternity Assessment Unit review within a week |
| 2+ Protein | Send PCR and refer for Maternity Assessment Unit review within 48 hours |
| Maternal Symptoms | Headache, epigastric pain and or visual disturbances without hypertension (systolic ≤140 mmHg and/or diastolic ≤90mmHg) with or without proteinuria | Depending on severity /nature of symptoms consider referral for same day hospital assessment OR reduce interval before next community antenatal assessment |
| Headache, epigastric pain and or visual disturbances with hypertension (systolic ≥140 mmHg and/or diastolic ≥90mmHg) or proteinuria (≥1+) | Immediate review at Maternity Assessment Unit |

# Appendix 8: Teach Back Questions (for use with women eligible for home blood pressure monitoring and urinalysis)

### Teach back questions

Q Can you tell me what will alert you to take your BP readings?

A e.g. Florence on my phone

Q What position should you be in to take BP readings?

A Sitting, with arm resting in front, at heart level

Q Can you tell me the order in which you should record the numbers?

A Text BP 135/60 (Systolic then Diastolic)

Q What urine should you not test?

A First urine of the day

Q How long should you wait after dipping the stick in urine to read the result?

A 60 seconds

Q How should you record your urine result?

A PROT 0 / 1 / 2

Q Who should you contact if Florence says your reading is not normal?

A Maternity Assessment Unit 01382 425 621

Document understanding in Maternal handheld notes /on Badger Net