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# Hypertensive Disorders during Pregnancy Guideline

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| **Summary statement: How does the document support patient care?** | By providing evidence based guidance for staff in the management and treatment of hypertensive disorders during pregnancy |
| **Staff/stakeholders involved in development:** | Leads for Maternity Risk Management (Obstetric and Midwifery), Labour Ward Leads (Obstetric and Midwifery), Joint Obstetric Guidelines Group, Anaesthetists. |
| **Division:** | Women and Children's |
| **Department:** | Maternity |
| **Responsible Person:** | Chief of Service |
| **Author:** | Consultant obstetrician/Midwife |
| **For use by:** | Medical Obstetric, Midwifery and Anaesthetic Staff |
| **Purpose:** | To provide evidence based guidance for staff when caring for women with hypertensive disorders in pregnancy. This guidance should be used in conjunction with the guideline for severe pre-eclampsia and eclampsia. |
| **This document supports:** | NICE Hypertension in Pregnancy NG133 |
| **Key related documents:** | **UH Sussex (SRH&WH) Maternity Guidelines:**<br>Management of Severe Pre-eclampsia and Eclampsia |
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| Version | Date | Author | Status | Comment |
|---|---|---|---|---|
| 1.0 | August 2011 | N. Maguire and H. Clarke | Archived | New Trust guideline |
| 1.1 | July 2014 | Joint Obstetric Guideline Group | Archived | 3 year review- no changes |
| 2.0 | Jan 2018 | Miss S Stone | Archive | 3 yearly review addition of appendix GP letter and Booking risk assessment |
| 3.0 | Aug 2018 | JOGG | Archived | Change in risk factors |
| 4.0 | November 2020 | S. Stone, Consultant obstetrician<br>J. Collard, Clinical Effectiveness Support Midwife | Archived | Guideline revised in line with NICE Hypertension in Pregnancy NG133 |
| 4.1 | September 2021 | S. Stone, Consultant obstetrician<br>J. Collard, Clinical Effectiveness Support Midwife | Live | Clarification of Risk Factors. Fluid balance monitoring updated. Home BP monitoring flow chart added. Amendment regarding monitoring of readings and return of equipment to the Home BP monitoring pathway. |

**The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician.**
**If in doubt contact a senior colleague or expert.**

## Index

# Hypertensive Disorders of Pregnancy Guideline

## 1.0 Aim

This guideline aims to provide evidence based information for staff to enable them to deliver safe and timely care.

## 2.0 Scope

- Midwives
- Obstetricians

## 3.0 Responsibilities

Midwives and Obstetricians are expected:

- To access, read, understand and follow this guidance.
- To use their professional judgement in the application of this guideline.

Management are expected:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

**Note: -** In cases of severe pre-eclampsia and eclampsia please refer to CG112 Management of Severe Pre-eclampsia and Eclampsia.

## 4.0 Introduction

Hypertensive disorders during pregnancy occur in women/people with pre-existing or chronic hypertension, and in women/people who develop new-onset hypertension in pregnancy.
Hypertensive disorders during pregnancy carry risks for the woman/person and the baby. Hypertension in pregnancy remains one of the leading causes of maternal death in the UK.

Hypertensive disorders also carry a risk for the baby. Small-for-gestational-age babies (mainly because of fetal growth restriction arising from placental disease) are common, with 20–25% of preterm births and 14–19% of term births in women/people with pre-eclampsia being less than the tenth growth centile of birth weight for gestation.

## 5.0 Definitions

For the purposes of this guideline, the following definitions apply:

- **Chronic hypertension** (formerly known as essential hypertension) is hypertension that is present at the booking visit or before 20 weeks or if the woman/person is already taking antihypertensive medication when referred to maternity services. It can be primary or secondary in aetiology.
- **Gestational hypertension** (formerly known as pregnancy induced hypertension) is new hypertension presenting after 20 weeks without significant proteinuria.
- **Pre-eclampsia** is new hypertension presenting after 20 weeks with significant proteinuria. Pre-eclampsia is a multisystem disorder that can affect almost all maternal organ systems and the unborn baby.
- **Severe pre-eclampsia** is pre-eclampsia with severe hypertension and/or with symptoms, and/or biochemical and/or haematological impairment.
- **Eclampsia** is a convulsive condition associated with pre-eclampsia.
- **HELLP syndrome** is haemolysis, elevated liver enzymes and low platelet count.

## 6.0 Assessment of blood pressure and urine

### 6.1 Degrees of hypertension

- Hypertension blood pressure of 140/90-159/109 mmHg.
- Severe hypertension blood pressure of 160/110 or more.

### 6.2 Assessment of proteinuria in pypertensive disorders of pegnancy

- A reagent-strip reading device (if available) should be used to measure proteinuria in the antenatal period in secondary care settings.
- Do not use first morning void to test for proteinuria.
- If 1+ proteinuria or more is detected, a sample of urine for urinary protein: creatinine ratio (PCR) should be obtained to quantify proteinuria. Significant proteinuria is diagnosed with a PCR 30mg/mmol or more. If there is uncertainty about the diagnosis of pre-eclampsia, consider re-testing on a new sample, alongside clinical review.

Do not routinely use 24-hour urine collection to quantify proteinuria. Interpret proteinuria measurements in the context of a full clinical review of symptoms, signs, and other investigations for pre-eclampsia.

## 7.0 Risk factors for pre-eclampsia

At the booking appointment and repeat in the second trimester either at the 16-18 week or 25 week appointment, the following risk factors for pre-eclampsia should be assessed:

### 7.1 Moderate risk factors

- Maternal age 40 years or older
- Nulliparity
- Pregnancy interval of more than 10 years
- Family history of pre-eclampsia
- Body mass index (BMI) 35 kg/m$^2$ or above
- Multiple pregnancy

Additional moderate risk factors for taking aspirin from Saving Babies Lives Care Bundle Version 2 (please note these two risk factors are not risk factors for developing PET):

- Assisted conception (IVF/ IUI)
- Current smoker

### 7.2 High risk factors

- Chronic hypertension
- Previous hypertensive disease during pregnancy – gestational hypertension and pre/eclampsia
- Chronic kidney disease
- Autoimmune disease i.e. lupus of antiphospholipid syndrome
- Type 1 or type 2 Diabetes

Additional high risk factors for taking aspirin from Saving Babies Lives Care Bundle (please note these three risk factors are not risk factors for developing PET):

- Low Pregnancy Associated Plasma Protein (PAPP-A) screening blood test
- Previous *Fetal Growth Restriction (*FGR) - either birth weight less than 2.5kg over 37 week's gestation or below the 10th growth centile).
- Previous stillbirth

Women/people with **one high risk factor** or **two moderate risk factors** of pre-eclampsia should be advised to take 150mg of aspirin once daily at night from 12 weeks until 36 weeks.

Women/people with one high risk factor should be referred to the Antenatal Clinic ideally for care under the Obstetric Medicine Consultant or other appropriate

Consultant as per local protocol. For women with 2 or more moderate risk factors, referral to Antenatal Clinic should be considered.

### 7.3 Uterine artery dopplers

Pregnant women/people with risk factors should be managed as indicated in the table below:

| | | |
|---|---|---|
| **Two moderate risk factors**<br><br>or<br><br>**One high risk factor** | Uterine artery dopplers with anomaly scan | **If normal:** Serial USS from **32** weeks every **2-4** weeks until birth. |
| | | **If abnormal uterine artery dopplers and EFW 10th Growth Centile or more:** Serial USS from **28** weeks every **2-4** weeks until birth. |
| | | **Abnormal uterine artery dopplers and AC or EFW below 10th Growth Centile:** Refer to Fetal Medicine Consultant. |
| **New onset of hypertension, gestational hypertension, pre-eclampsia** | Serial USS from diagnosis until birth. | |

*Saving Babies Lives Care Bundle V2*

## 8.0 Antenatal care of women/people at high risk of pre-eclampsia

Perform uterine artery doppler with anomaly scan and carry out ultrasound fetal growth, amniotic fluid volume assessment and umbilical artery doppler velocimetry (see table in Section 7.3) starting at 32 weeks (or at least 2 weeks before previous gestational age of onset if earlier than 28 weeks) and repeating 2-4 weeks until birth in women with previous:

- Severe pre-eclampsia.
- Pre-eclampsia that needed birth before 34 weeks.
- Pre-eclampsia with a baby whose birth weight was less than the 10th growth centile.
- Intrauterine death.
- Placental abruption.

For women/people at high risk of pre-eclampsia, antenatal monitoring of blood pressure (BP) and urinalysis should be individualised depending on clinical picture, but should be checked every 2 weeks from 28 weeks.

Perform CTG when fetal movements are reduced or required in professional judgment.

Pregnant women/people should be made aware of the need to contact Labour Ward promptly if they experience symptoms of pre-eclampsia. Symptoms include:

- Severe headache.
- Problems with vision, such as blurring or flashing before the eyes.
- Severe pain just below the ribs.
- Vomiting.
- Sudden swelling of the face, hands or feet.

When women/people present with new onset of any of these symptoms, blood pressure and urinalysis must be checked and further assessment/referral considered.

## 9.0 Management of pregnancy with chronic hypertension

**Chronic hypertension** is hypertension that is present at the booking visit or before 20 weeks or if the woman/person is already taking antihypertensive medication when referred to maternity services. It can be primary or secondary in aetiology.

### 9.1 Pre-pregnancy care

Offer women/people with chronic hypertension referral to maternal medicine/ specialist in hypertensive disorders of pregnancy to discuss the risks and benefits of treatment.

Continue with existing antihypertensive treatment if safe in pregnancy or switch to an alternative treatment, unless there is a:

- Sustained systolic blood pressure reading less than 110 mmHg **or**
- Sustained diastolic blood pressure reading less than 70 mmHg **or**
- The woman/person is symptomatic of hypotension.

Offer antihypertensive treatment to pregnant women/people not currently on treatment who have chronic hypertension if they have a:

- Sustained systolic blood pressure reading of 140 mmHg or higher **or**
- Sustained diastolic blood pressure reading of 90 mmHg or higher.

There is an increased risk of congenital abnormalities if angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs) are taken during pregnancy. These should be stopped as soon as pregnancy is confirmed. Alternative antihypertensive treatment can be discussed with the healthcare professional responsible for managing their hypertension ideally pre-pregnancy.

Chlorothiazide diuretics may be associated with congenital abnormality and neonatal complications and alternatives should be considered.

Advise women/people who take antihypertensive treatments other than ACE inhibitors, ARBs, Thiazide or Thiazide-like diuretics that the limited evidence available has not shown an increased risk of congenital malformation with such treatments.

Commence Aspirin 150mg daily at night from 12 weeks gestation until 36 weeks.

Avoid using nitric oxide donors, progesterone, diuretics or low molecular weight heparin, and nutritional supplements or salt restriction to prevent hypertensive disorders in pregnancy.

### 9.2 Antihypertensive treatment appropriate for pregnancy

- Labetalol can be used to treat women with chronic hypertension.
- If Labetalol not suitable (contraindicated with asthma) consider Nifedipine **or**
- Third line, Methyldopa.

Decide treatment based on side effects, risks (to mother and fetus), and the woman/person's preferences.

### 9.3 Antenatal care

Women/people with chronic hypertension must be referred to the Obstetric Medicine / Maternal Medicine Clinic as early as possible in the pregnancy for assessment and plan.

Consider:

- Full history to consider underlying causes of secondary hypertension.
- Cardiovascular examination.
- Baseline U&E's and LFT's and ECG.

A pregnancy plan should be made outlining timing of antenatal appointments and parameters for referral to Day Assessment Unit (DAU) / Antenatal Clinic.

Home BP monitoring should be offered (see Appendix 6 for home BP protocol and pathway). If not available, women/people will need weekly midwifery review if BP control is difficult or 2-4 weekly for well controlled BP. In addition they should be followed up in maternal medicine clinic.

Urinalysis for proteinuria should be performed at every visit or if home BP monitoring, weekly. Refer to Day Assessment Unit if new onset proteinuria or other symptoms / signs of pre-eclampsia and follow guidance in section 11 for management of suspected pre-eclampsia.

Aim for a target blood pressure of 135/85mmHg or less.

Offer advice on weight management, exercise, healthy eating and lowering the amount of salt in their diet.

Offer placental growth factor (PIGF) - based testing (if available) to help rule out pre-eclampsia between 20 weeks and up to 35 weeks of pregnancy, if a woman/person with chronic hypertension is suspect of developing pre-eclampsia.

Schedule additional appointments based on the individual needs of the woman/person and their baby.

### 9.3.1 Fetal monitoring

If normal artery doppler at anomaly scans, carry out ultrasound fetal growth scans to include amniotic fluid volume assessment and umbilical artery doppler velocimetry at 32 weeks and then every 2-4 weeks until birth.

If abnormal artery doppler, perform serial ultrasounds from 28 weeks and then every 2-4 weeks until birth.

Cardiotocography (CTG) is only necessary if fetal activity is abnormal or required in professional judgment.

Refer to the CG15022 Small for Gestational Age and Fetal Growth Restriction Guideline for further information.

### 9.3.2 Timing of birth

Avoid induction of labour before 37 weeks in women/people with chronic hypertension whose blood pressure is lower than 160/110 mmHg, with or without antihypertensive treatment, unless otherwise clinically indicated. Timing of birth and maternal / fetal indications for birth should be agreed between the senior obstetrician and the woman/person on an individual basis.

Consider induction of labour before 37 weeks for women/people with uncontrolled severe chronic hypertension (110/160 or above), after a course of corticosteroids has been completed (if less than 35 weeks), and consider Magnesium Sulphate in line with CG20013 Preterm Birth Risk Pathway.

## 10.0 Management of pregnancy with later onset or gestational hypertension

**Gestational hypertension** is new hypertension presenting after 20 weeks without significant proteinuria.

### 10.1 Antenatal care

- Women/people with gestational hypertension should be reviewed in DAU, Antenatal Clinic or Labour Ward depending on the severity by a healthcare professional trained in the management of hypertensive disorders of pregnancy.
- Refer women/people over 20+0 weeks with a first episode of hypertension (blood pressure of 140/90 mmHg or higher) to DAU or labour ward to be seen within 24 hours.
- Urgently refer women/people with severe hypertension (blood pressure of 160/110 mmHg or higher) to labour ward to be seen on the same day. The urgency of the referral should be determined by an overall clinical assessment.
- Previous history of pre-eclampsia or gestational hypertension, pre-existing vascular or kidney disease, moderate risk factors for pre-eclampsia and gestational age at presentation should be considered.
- Offer placental growth factor (PIGF) - based testing (if available) to help rule out pre-eclampsia between 20 weeks and up to 35 weeks of pregnancy, if a woman/person with chronic hypertension is suspect of developing pre-eclampsia.
- Antihypertensive treatment (see table below and Section 9.2 – for treatment acceptable in pregnancy).
- Bed rest should not be offered as treatment for gestational hypertension.
- Home BP monitoring pathway (Appendix 4) may be considered in women/people requiring antihypertensive therapy to maintain normal range BP.

| Action | Degree of hypertension | |
|---|---|---|
| | **Hypertension: blood pressure of 140/90–159/109mmHg** | **Severe hypertension: blood pressure of 160/110mmHg or more** |
| **Admission to hospital** | Do not routinely admit to hospital. | Admit, but if BP falls below 160/110mmHg then manage as for hypertension. |
| **Antihypertensive pharmacological treatment** | Offer pharmacological treatment if BP remains above 140/90mmHg. | Offer pharmacological treatment to all women. |

| | | |
|---|---|---|
| **Target blood pressure once on antihypertensive treatment** | Aim for BP of 135/85mmHg or less. | Aim for BP of 135/85mmHg or less. |
| **Blood pressure measurement** | Once or twice a week (depending on BP) until BP is 135/85mmHg or less. | Every 15–30 minutes until BP is less than 160/110mmHg. |
| **Dipstick proteinuria testing*** | Once or twice a week (with BP measurement). | Daily while admitted. |
| **Blood tests** | Measure full blood count, liver function and renal function at presentation and then weekly. | Measure full blood count, liver function and renal function at presentation and then weekly. |
| **PlGF-based testing (if available)** | Carry out PlGF-based testing (if available) on 1 occasion if there is suspicion of pre-eclampsia. | Carry out PlGF-based testing (if available) on 1 occasion if there is suspicion of pre-eclampsia. |
| **Fetal assessment** | • Offer fetal heart auscultation at every face-to-face antenatal appointment.<br>• Ask about fetal movements at every appointment including telephone appointments.<br>• Carry out ultrasound assessment of the fetus at diagnosis and, if normal, repeat every 2 weeks.<br>• Refer to CG15022 Small for Gestational Age and Fetal Growth Restriction Guideline | • Offer fetal heart auscultation at every face-to-face antenatal appointment.<br>• Ask about fetal movements at every appointment including telephone appointments.<br>• Carry out a CTG at diagnosis and then only if clinically indicated.<br>• Carry out ultrasound assessment of the fetus at diagnosis and, if normal, repeat every 2 weeks.<br>• Refer to CG15022 Small for Gestational Age and Fetal Growth Restriction Guideline |
| * Use an automated reagent-strip reading device (if available) for dipstick screening for proteinuria in a secondary care setting.<br>Abbreviations: BP, blood pressure; CTG, cardiotocography; PIGF, placental growth factor. | | |

*NICE NG133 Hypertensive Disorders of Pregnancy 2019*

In hospital, observations must be recorded on the MEOW chart and referral made accordingly.

### 10.1.1 Fetal monitoring

**Gestational hypertension (140/90 – 159/109mmHg)**

In women/people with gestational hypertension, carry out ultrasound fetal growth to include amniotic fluid volume assessment and umbilical artery doppler velocimetry at diagnosis. Repeat every 2-4 weeks until birth.

In women/people with gestational hypertension, cardiotocography (CTG) is only necessary if fetal activity is abnormal or required in professional judgement.

Refer to CG15022 Small for Gestational Age and Fetal Growth Restriction Guideline.

**Severe gestational hypertension (160/110mmHg or more)**
**At diagnosis:**

- CTG.
- Ultrasound fetal growth; including amniotic fluid volume assessment and umbilical artery doppler velocimetry (if conservative management planned).
- Carry out ultrasound assessment of the fetus at diagnosis and, if normal, repeat every 2 weeks until birth.
- Refer to CG15022 Small for Gestational Age and Fetal Growth Restriction Guideline.

**If the results of all fetal monitoring are normal, do not routinely repeat CTG more than weekly; unless any of the following occur:**

- The woman/person reports a change in fetal movement.
- Vaginal bleeding.
- Abdominal pain.
- Deterioration in maternal condition.

**For severe gestational hypertension ensure senior obstetric review for plan of care including:**

- Timing, nature and place of future fetal monitoring.
- Maternal and fetal indications for birth.
- Timing of corticosteroids should be given if indicated.
- Liaison with neonatal paediatricians and obstetric anaesthetists.

### 10.1.2 Timing of birth

- Avoid induction of labour before 37 weeks to women with gestational hypertension whose blood pressure is lower than 160/110mmHg, with or without antihypertensive treatment, unless there are other medical indications.

- Timing of birth and maternal/fetal indications for birth should be agreed between the senior obstetrician and the woman/person on an individual basis.
- Consider induction of labour for women before 37 weeks with uncontrolled severe gestational hypertension (160/110 or higher), after a course of corticosteroids has been completed (if less than 35 weeks), and consider Magnesium Sulphate in line with CG20013 Preterm Birth Risk Pathway.

## 11.0 Management of pregnancy with pre-eclampsia

**Pre-eclampsia** is **new** hypertension presenting after 20 weeks with **significant proteinuria** (1+ or more). Women/people with newly presenting pre-eclampsia should be reviewed on Labour Ward or DAU (depending on severity).

They should be reviewed by a healthcare professional trained in the management of hypertensive disorders of pregnancy.

Subsequent care can be managed between DAU, Antenatal Clinic or Labour Ward depending on the severity.

Offer Labetalol to treat women/people with pre-eclampsia. If Labetalol not suitable (contraindicated with asthma), consider Nifedipine, if Labetalol and Nifedipine not suitable consider Methyldopa. Medication choice should be based on side effects, risks (to mother and fetus) and the woman/person's preferences.

Carry out a full clinical assessment at each antenatal appointment.

Offer admission for surveillance and interventions needed if there are concerns regarding the wellbeing of the woman/person or fetus.

These concerns can include a sustained diastolic blood pressure 160mmHg or above or a new or persistent biochemical or haematological results that cause concern:

- Rise in creatinine (90micromol/litre or more, 1mg/100ml or more).
- Rise in alanine transaminase (over 70IU/litre or twice upper limit of normal range).
- Fall in platelet count (under 150,000/microliter).
- Signs of impending eclampsia.
- Signs of pulmonary oedema.
- Other signs of severe pre-eclampsia.
- Suspected fetal compromise.
- Any other clinical signs that cause concern.

### 11.1 Antenatal care

Women/people with pre- eclampsia should be managed as indicated in the table below:

| Action | Degree of hypertension | |
|---|---|---|
| | **Hypertension:**<br>**blood pressure of 140/90–159/109mmHg** | **Severe hypertension:**<br>**blood pressure of 160/110mmHg or more** |
| **Admission to hospital** | Admit if any clinical concerns for the wellbeing of the woman/person or baby. | Admit, but if BP falls below 160/110mmHg then manage as for hypertension. |
| **Antihypertensive pharmacological treatment** | Offer pharmacological treatment if BP remains above 140/90mmHg. | Offer pharmacological treatment to all women. |
| **Target blood pressure once on antihypertensive treatment** | Aim for BP of 135/85mmHg or less. | Aim for BP of 135/85mmHg or less. |
| **Blood pressure measurement** | At least every 48 hours, and more frequently if the woman/person is admitted to hospital. | Every 15–30 minutes until BP is less than 160/110mmHg, then at least 4 times daily whilst the woman/person is an inpatient, depending on clinical circumstances. |
| **Dipstick proteinuria testing*** | Only repeat if clinically indicated, for example if new symptoms and signs develop or if there is uncertainty over diagnosis. | Only repeat if clinically indicated, for example if new symptoms and signs develop or if there is uncertainty over diagnosis. |
| **Blood tests** | Measure full blood count, liver function and renal function twice a week. | Measure full blood count, liver function and renal function 3 times a week. |

| | | |
|---|---|---|
| **Fetal assessment** | • Offer fetal heart auscultation at every face-to-face antenatal appointment.<br>• Ask about fetal movements at every appointment including telephone appointments.<br>• Carry out ultrasound assessment of the fetus at diagnosis and, if normal, repeat every 2 weeks until birth.<br>• Carry out a CTG at diagnosis and then only if clinically indicated. | • Offer fetal heart auscultation at every face-to-face antenatal appointment.<br>• Ask about fetal movements at every appointment including telephone appointments.<br>• Carry out ultrasound assessment of the fetus at diagnosis and, if normal, repeat every 2 weeks until birth.<br>• Carry out a CTG at diagnosis and then only if clinically indicated. |

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In hospital, observations must be recorded on the MEOW chart and referral made accordingly.

### 11.1.1 Fetal monitoring

**Severe pre-eclampsia**

Carry out CTG at diagnosis of severe pre-eclampsia.

If conservative management of severe confirmed pre-eclampsia is planned, carry out all the following tests at diagnosis:

- Ultrasound fetal growth and amniotic fluid volume assessment.
- Umbilical artery doppler velocimetry.

Repeat ultrasound fetal growth, amniotic fluid volume assessment or umbilical artery doppler velocimetry every 2-4 weeks if normal until birth.

If the results of all fetal monitoring are normal, do not routinely repeat CTG more than weekly; unless any of the following occur:

- The woman/person reports a change in fetal movement.
- Vaginal bleeding.
- Abdominal pain.
- Deterioration in maternal condition.

For women/people with conservative management of pre-eclampsia there needs to be a plan of care to include:

- Timing, nature and place of future fetal monitoring.
- Fetal indications for birth.
- If and when corticosteroids should be given.
- When discussion with neonatal paediatricians and obstetric anaesthetists should take place and what decisions should be made.

The consultant obstetrician should be informed of any abnormal fetal monitoring results.There must be a documented plan in the notes which should include the following:

- Maternal and fetal thresholds for planned early birth prior to 37 weeks gestation.
- Considerations can include (but not limited to):
  - Inability to control blood pressure despite using three or more classes of antihypertensive.
  - Maternal pulse oximetry less than 90%.
  - Progressive deterioration in liver or renal function, haemolysis or platelet count.
  - Ongoing neurological features, such as severe intractable headache, repeated visual scotmata, or eclampsia.
  - Placental abruption.
  - Reversed end-diastolic flow in the umbilical artery doppler, a non-reassuring CTG or stillbirth.
  - When corticosteroids should be given.
  - When discussions with paediatricians and anaesthetists should take place and what decisions should be made.

### 11.1.2 Timing of birth

The consultant obstetrician should be involved in any decisions regarding timing of birth.

| Weeks of pregnancy | Timing of birth |
|---|---|
| **Before 34 weeks** | Continue surveillance unless there are indications for planned early birth. Offer intravenous magnesium sulphate and a course of antenatal corticosteroids in line with CG20013 Preterm Birth Risk Pathway. |
| **From 34 to 36$^{+6}$ weeks** | Continue surveillance unless there are indications for planned early birth.<br>When considering the option of planned early birth take into account the woman/person's and baby's condition, risk factors (such as maternal comorbidities, multi-fetal pregnancy) and availability of neonatal unit beds. Consider a course of antenatal corticosteroids in line with CG20013 Preterm Birth Risk Pathway. |
| **37 weeks onwards** | Initiate birth within 24–48 hours. |

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If birth is planned before 34 weeks, discussion must occur with neonatal and anaesthetic teams.

## 12.0 Intrapartum care for chronic and gestational hypertension and pre-eclampsia

**Hypertension (140/90–159/109mmHg)**

- Measure BP hourly.
- Continue antenatal hypertensive treatment.
- Carry out blood tests according to criteria from antenatal period.
- Do not routinely limit duration of second stage of labour if BP stable.
- Third Stage - 10 units Syntocinon should be prescribed and administered intramuscularly.
- On admission commence fluid balance monitoring as per 'Maternity Fluid Balance Measurement as an In-Patient or in Labour Guideline'.

**Severe Hypertension (160/110mmHg and above)**
See CG112 Management of Severe Pre-eclampsia and Eclampsia.

## 13.0 Postnatal care for chronic and gestational hypertension and pre-eclampsia

### 13.1 Blood pressure

Essential, gestational, intrapartum hypertension or pre-eclampsia may persist in the postnatal period and hypertension, pre-eclampsia or eclampsia can develop de novo postnatally. Blood pressure is physiologically highest around day 3 postnatally and for some women/people a prolonged period of monitoring is justified. If new onset severe headache, visual disturbance or upper abdominal pain occurs, medical review should be sought.

Blood pressure should be checked within the first hour post birth and four hours later as a minimum, and continued 4 hourly for 24 hours if antenatal or intrapartum anti-hypertensives have been needed.

Hypertension and PET may deteriorate in the first 48-72 hours postpartum. 40% of eclampsia occurs postpartum but is unlikely to present after the fifth postpartum day.

Women/people with complicated pre-eclampsia should stay in hospital for 48-72hrs post birth.

For women/people who have given birth with un-medicated pre-eclampsia monitor blood pressure:

- At least 4 times a day whilst the woman/person is an inpatient and record on MEOWS chart.

- At least once a day during day 3 to day 5 post birth.
- On alternate days until normal if blood pressure was abnormal on days 3-5.

Consider anti-hypertensive treatment if blood pressure persistently 140/90mmHg or more and recommend if higher than 150/100mmHg.

Check for symptoms (headache and epigastric pain) at each blood pressure check. For women/people who have given birth and are on an antihypertensive treatment, measure blood pressure:

- At least 4 times a day whilst the woman/person is an inpatient and record on MEOWS chart.
- Continue antenatal antihypertensive treatment (except methyldopa, which should be stopped within 2 days and alternative treatment prescribed or recommence on pre-pregnancy anti-hypertensive).
- Consider reducing treatment if blood pressure falls below 140/90mmHg and reduce treatment if blood pressure less than 130/80mmHg.
- Offer transfer to community care once the following criteria are met:
  - There are no symptoms of pre-eclampsia.
  - Blood pressure, with or without treatment, is 150/100mmHg or less.
  - Blood results are stable or improving.
- All women/people who have had pre-eclampsia should have postnatal care plan documented for transfer to community care. This should include:
  - Who will provide follow-up care, including medical review if needed.
  - Frequency of blood pressure monitoring required.
  - Thresholds for reducing or stopping treatment.
  - Indications for referral to primary care for blood pressure review.
  - Self-monitoring of symptoms. (See appendix 8)
- Discharge on treatment and provide home BP monitor if patient does not already have one (see appendix 6 and appendix 8). Ensure the patient is aware of who (ie the labour ward/triage) and when to contact if the BP rises above the target readings. It is the responsibility of the patient's named community midwife and the labour ward/obstetric team to oversee the care of the postnatal women/people with hypertension in liaison with the maternal medicine consultants until they are discharged back to the GP (usually between 2and 6 weeks postnatal).
- Check BP at home with home monitor every 1-2 days for up to 2 weeks following discharge or until the woman/person is off treatment and arrange return or collection of home BP monitor. (See appendix 6 and appendix 8)

### 13.2 Blood tests

If mild/moderate pre-eclampsia or step down from CG112 Management of Severe Pre-eclampsia and Eclampsia, measure U&E's, LFT's and FBC 48-72 hours after birth or step down. Repeat as clinically indicated. Do not repeat if results normal.

### 13.3 Fluid balance

**Chronic hypertension and gestational hypertension:**
Fluid balance monitoring should continue as per CG21009 Maternity Fluid Management as an In-Patient or in Labour Guideline.

**Severe pre-eclampsia:**
If creatinine levels are within normal range after step down from intensive fluid balance monitoring as per CG112 Management of Severe Pre-eclampsia and Eclampsia, commence routine fluid balance monitoring as per CG21009 Maternity Fluid Management as an In-Patient or in Labour Guideline.

### 13.4 Follow up

A member of the Obstetric Team should telephone the woman/person's GP Surgery directly on discharge with plan for follow up, in addition to sending a Discharge Letter marked 'Urgent for Immediate Medical Review' (see Appendix 7).

Offer medical review (can be with GP or Obstetrician) for women/people with pre-eclampsia:

- Who remain on antihypertensive treatment at 2 weeks after discharge.
- And at 6-8 weeks postnatally (to include urinary reagent dipstick test).

Women/people who remain on antihypertensive treatment at 6-8 weeks postnatally, or have persistent proteinuria should be referred for specialist assessment of their hypertension and/or proteinuria to assess kidney function. If abnormal after 3 months they should be referred for specialist kidney assessment. (See appendix 8)

### 13.5 Postnatal antihypertensive treatment

- Discuss and decide treatment options with the woman/person based on her preferences.
- Offer Enalapril to treat hypertension in women/people during the postnatal period, with appropriate monitoring of maternal renal function and maternal serum potassium.
- For women/people of black African or Caribbean family origin with hypertension during the postnatal period, consider antihypertensive treatment with:
  - Nifedipine **or**
  - Amlodipine if the womanperson has previously used this to successfully control their blood pressure.
  - For women/people with hypertension in the postnatal period, if blood pressure is not controlled with a single medicine consider a combination of Nifedipine (or Amlodipine) and Enalapril. If this combination is not tolerated or is ineffective, consider either:
    - Adding Atenolol or Labetalol to the combination treatment **or**
    - Swapping 1 of the medicines already being used for Atenolol or Labetalol.

- When treating women/person with antihypertensive medication during the postnatal period, use medicines that are taken once daily when possible.
- Treat women/people with hypertension in the postnatal period who are not breastfeeding and who are not planning to breastfeed in line with the NICE Guideline on Hypertension in Adults.

### 13.6 Antihypertensive treatment and breastfeeding

Inform women/people with hypertension who wish to breastfeed that their treatment can be adapted to accommodate breastfeeding, and will not prevent them from breastfeeding. Explain:

- Antihypertensive medicines can pass into breast milk.
- Most antihypertensive medicines taken while breastfeeding only lead to very low levels in breast milk and would be unlikely to have any clinical effect.
- Most medicines are not tested in pregnant or breastfeeding women/people, so disclaimers in the manufacturer's information are not because of any specific safety concerns or evidence of harm.

As antihypertensive agents have the potential to transfer into breast milk:

- Consider monitoring the blood pressure of babies, especially those born preterm, who have symptoms of low blood pressure for the first few weeks.
- When discharged home, advise women/people to monitor their babies for drowsiness, lethargy, pallor, cold peripheries or poor feeding.

Where possible, avoid using diuretics or angiotensin receptor blockers to treat hypertension in women/people in the postnatal period who are breastfeeding or expressing milk.

For further information on breastfeeding and anti-hypertensives see Breastfeeding & Antihypertensives.

## 14.0 Risk of reoccurrence of hypertensive disorders in pregnancy

Inform women/people with hypertensive disorders in pregnancy that there is an approximate 1:5 risk of reoccurrence (see Appendix 4).

## 15.0 Long-term risks of cardiovascular disease

Inform women/people who have had a hypertensive disorder of pregnancy that this is associated with an increased risk of hypertension and cardiovascular disease in later life (see Appendix 5).

Discuss how to reduce their risk of cardiovascular disease, including hypertensive disorders, with their GP or specialist. This may include:

- Avoiding smoking.
- Maintaining a healthy lifestyle.
- Maintaining a healthy weight.

In women/people who have had pre-eclampsia or hypertension with early birth before 34 weeks, consider pre-pregnancy counselling to discuss possible risks of recurrent hypertensive disorders of pregnancy, and how to lower them for any future pregnancies.

Advise women/people who have had pre-eclampsia to achieve and keep a BMI within the healthy range before their next pregnancy (18.5–24.9kg/$m^2$).

Advise women/people who have had pre-eclampsia that the likelihood of recurrence increases with an inter-pregnancy interval greater than 10 years.

## 16.0 Monitoring / Audit

- Pregnant women/people at increased risk of pre-eclampsia at booking appointment are offered a prescription 150mg of Aspirin to take daily at night until 36 weeks.

- Women/people taking antihypertensive medication have a blood pressure of 135/85mmHg or less.

- Pregnant women/people with severe hypertension are admitted for a full assessment carried out by a healthcare professional trained in managing hypertension in pregnancy.

- Women/people with pre-eclampsia who have severe hypertension or a high risk of adverse events, or if there are any clinical concerns are admitted to hospital and monitored.

- Women/people with PET have a senior obstetrician involved in any decisions about timing of birth.

- Women/people who have had hypertension have a plan for ongoing antihypertensive management included within the postnatal care plan, which is communicated to their GP when they are transferred to community care after the birth.

For further audit guidance please contact the Maternity Clinical Effectiveness Team.

## References

MBRRACE UK. 2019. *MBRRACE-UK Report 2019: Saving Lives, Improving Mother's Care 2015-2017*. Oxford: MBRRACE-UK.

National Institute for Health and Clinical Excellence. 2019. *Hypertension in Pregnancy. NICE Pathway*. London: NICE. Available at: https://www.nice.org.uk/guidance/ng133

University Hospital Southampton regional maternal medicine network guideline. 2020. *Hypertension in pregnancy and the puerperium guideline*.

## Appendix 1: Drug information

It is assumed that prescribers will use a drug's SPC to inform decisions made with individual patients. Drugs for which particular attention should be paid to the contraindications and special warnings during pregnancy and lactation are listed below.

**Atenolol** is licensed for the treatment of hypertension and is already used widely in UK postnatal obstetric practice, but the SPC (August 2013) advises that anticipated benefit be weighed against the possible risks of its use particularly in the first and second trimesters of pregnancy, and in women who may become pregnant or who are breastfeeding. Informed consent on the use of atenolol in these situations should be obtained and documented.

**Captopril** is licensed for the treatment of hypertension and is already used in UK postnatalobstetric practice, but the SPC (August 2013) advises that it is contraindicated in the second and third trimesters of pregnancy and in lactation and that it is not recommended during the first trimester of pregnancy or in breastfeeding for preterm infants and for the first few weeks after delivery. Informed consent on the use of captopril in these situations should be obtained and documented.

**Enalapril** is licensed for the treatment of hypertension and is already used widely in UK postnatal obstetric practice, but the SPC (August 2013) advises that it is contraindicated in the second and third trimesters of pregnancy and that it is not recommended during the first trimester of pregnancy or in breastfeeding for preterm infants and for the first few weeks after delivery. Informed consent on the use of enalapril in these situations should be obtained and documented.

**Labetalol** is licensed for the treatment of hypertension, including during pregnancy and is already used widely in UK obstetric practice, but the SPC (August 2013) advises that it should only be used during the first trimester of pregnancy if the potential benefit outweighs the potential risk, and that breastfeeding is not recommended. Informed consent on the use of labetalol in these situations should be obtained and documented.

**Methyldopa** is licensed for the treatment of hypertension and is already used widely in UK obstetric practice, but the SPC (August 2013) advises that its use in women who are, or may become, pregnant or who are breastfeeding their newborn infant requires that anticipated benefits be weighed against possible risks. Informed consent on the use of methyldopa in these situations should be obtained and documented.

**Metoprolol** is licensed for the treatment of hypertension and is already used widely in UK postnatal obstetric practice, but the SPC (August 2013)advises that anticipated benefit be weighed against the possible risks of its use in women who are pregnant or breastfeeding. Informed consent on the use of metoprolol in these situations should be obtained and documented.

**Nifedipine** is licensed for the treatment of hypertension and is already used widely in UK obstetric practice, but the SPC (August 2013) advises that it is contraindicated in women who may become pregnant, and in pregnancy before week 20, and that any use in pregnancy after week 20 requires a very careful individual risk benefit assessment. It also advises that nifedipine should not be used during breastfeeding. Informed consent on the use of nifedipine in these situations should be obtained and documented.

## Appendix 2: Antenatal risk assessment for pre-eclampsia

# Aspirin in pregnancy

### Why is aspirin given during pregnancy?

Some pregnant women are at risk of developing pre-eclampsia (a serious condition which usually presents as high blood pressure and protein in the urine) and fetal growth restriction (when the baby is smaller than usual due to not growing at a normal rate in the womb). There is evidence to suggest that this group of women are at reduced risk of developing these conditions if they take a low dose of aspirin during their pregnancy.

**Why do I need aspirin during my pregnancy?**

If you have 1 of the following risk factors you will be offered aspirin during your pregnancy:
(Your midwife/doctor will indicate which risk factor(s) apply to you)

- Hypertensive disease during your previous pregnancy
- Chronic kidney disease
- Autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome
- Type 1 or Type 2 diabetes
- Chronic hypertension
- Low Pregnancy Associated Plasma Protein (PAPP-A) screening blood test
- Previous *Fetal Growth Restriction (*FGR) - either birth weight <2.5kg over 37 week's gestation or <10th centile)
- Previous stillbirth
- Previous pre-eclampsia or eclampsia

If you have 2 of the following risk factors you will be offered aspirin during your pregnancy:
(Your midwife/doctor will indicate which risk factors apply to you)

- First pregnancy
- Pregnancy interval of more than 10 years
- Family history of pre-eclampsia
- Assisted conception (IVF/ IUI)
- Age 40 years or older
- Body Mass index (BMI) of 35Kg/m2 or more at first contact
- Current smoker
- Multiple pregnancy

### How much aspirin do I need to take?

You will be prescribed 150mg of aspirin to take once daily ideally at night with food. You should take this as soon as you receive the prescription (as this is associated with better outcomes) until the birth of your baby.

### How will I receive the prescription?

Most risk factors will be identified by your midwife at your first booking appointment. The midwife will send a letter to your doctor to request the prescription which you can collect from your doctor's surgery. Some risk factors may be identified later in your pregnancy, for example following an ultrasound scan. If this is the case your midwife or doctor will inform you at that time and will notify your doctor in the same manner.

### Are there any contraindications to taking aspirin?

If you have any of the conditions below, we would not recommend taking aspirin during your pregnancy: active or previous peptic (stomach or duodenal) ulcer; bleeding disorders (antiplatelet dose); children under 16 years (risk of Reye's syndrome); haemophilia or severe cardiac failure.

If you develop any side effects, then please contact your midwife or Doctor.

- Your obstetrician will discuss the benefits and risks of treatment with aspirin after 36 weeks gestation and agree with you when to stop aspirin treatment.
- Stop aspirin 24 hours prior to an elective caesarean section, induction of labour, or any invasive procedures.

## Stop aspirin if signs of labour or heavy vaginal bleeding.

## Appendix 3: GP letter – Aspirin prophylaxis

Inspected and rated Outstanding ☆ CareQuality Commission

NHS
Western Sussex Hospitals
NHS Foundation Trust

Date:

Dear

RE:

NHS number:

Your patient ..... has been identified as having one or more risk factors for development of pre-eclampsia and or intra-uterine growth restriction and therefore meets the criteria for aspirin prophylaxis in pregnancy. She does not have any contraindication or allergy to aspirin and has accepted prophylaxis in accordance with NICE guideline NG133 Hypertension in Pregnancy 2019.

I would be grateful if you could prescribe aspirin 150mg daily at night with food throughout the pregnancy. The woman/person will be advised by her obstetrician when to cease taking this dose of aspirin from around 36 weeks but this will be an individualised plan.

Yours sincerely,

Midwife

## Appendix 4: Risk of reoccurrence of hypertensive disorders in pregnancy

| | Type of hypertension in previous or current pregnancy | | |
|---|---|---|---|
| **Prevalence of hypertensive disorder in a future pregnancy** | **Any hypertension in pregnancy** | **Pre-eclampsia** | **Gestational hypertension** |
| **Any hypertension** | Approximately 21%<br>(1 in 5) | Approximately 20%<br>(1 in 5) | Approximately 22%<br>(1 in 5) |
| **Pre-eclampsia** | Approximately 14%<br>(1 in 7) | Up to approximately 16%<br>(1 in 6)<br><br>If birth was at 28–34 weeks[a]: approximately 33%<br>(1 in 3)<br><br>If birth was at 34–37 weeks: approximately 23%<br>(1 in 4) | Approximately 7%<br>(1 in 14) |
| **Gestational hypertension** | Approximately 9%<br>(1 in 11) | Between approximately 6 and 12%<br>(up to 1 in 8) | Between approximately 11 and 15%<br>(up to 1 in 7) |
| **Chronic hypertension** | Not applicable | Approximately 2%<br>(up to 1 in 50) | Approximately 3%<br>(up to 1 in 34) |
| [a] No evidence was identified for women/people who gave birth at less than 28 weeks, but the committee agreed that the risk was likely to be at least as high, if not higher, than that for women/people who gave birth between 28 and 34 weeks. | | | |

*NICE NG133 Hypertensive Disorders of Pregnancy 2019*

## Appendix 5: Risk of future cardiovascular disease

| | Type of hypertension in current or previous pregnancy | | | |
|---|---|---|---|---|
| **Risk of future cardiovascular disease[a,b]** | **Any hypertension in pregnancy** | **Pre-eclampsia** | **Gestational hypertension** | **Chronic hypertension** |
| **Major adverse cardiovascular event** | Risk increased (up to approximately 2 times) | Risk increased (approximately 1.5–3 times) | Risk increased (approximately 1.5–3 times) | Risk increased (approximately 1.7 times) |
| **Cardiovascular mortality** | Risk increased (up to approximately 2 times) | Risk increased (approximately 2 times) | (no data) | (no data) |
| **Stroke** | Risk increased (up to approximately 1.5 times) | Risk increased (approximately 2–3 times) | Risk may be increased | Risk increased (approximately 1.8 times) |
| **Hypertension** | Risk increased (approximately 2–4 times) | Risk increased (approximately 2–5 times) | Risk increased (approximately 2–4 times) | (not applicable) |

[a] Risks described are overall estimates, summarised from risk ratios, odds ratios and hazard ratios.

[b] Increased risk is compared to the background risk in women who did not have hypertensive disorders during pregnancy. Absolute risks are not reported, because these will vary considerably, depending on the follow up time (range from 1 to 40 years postpartum).

*NICE NG133 Hypertensive Disorders of Pregnancy 2019*

## Appendix 6: Home BP pathway and guidance

## Self-monitoring of Blood Pressure - Antenatal and Postnatal

**Inclusion criteria:**

**Home BP monitoring should only be offered to women who are currently hypertensive i.e. Women with chronic hypertension, gestational hypertension or pre-eclampsia.**
This is to ensure sufficient supply and equitable access for those who most need it. Normotensive women considered at higher risk of pregnancy hypertension by NICE guidelines should **not** currently be offered a home BP monitor. They may wish to purchase their own.

**Exclusion Criteria:**
Before women start on this pathway the healthcare professionals must make sure that the women do not come under any of the exclusion categories below.

- Women who are diagnosed with severe pre-eclampsia.
- Women who have had any systolic BP measurement of 160 mmHg or above and diastolic BP measurement of 110 or above.
- Women with worsening abnormality in PET bloods.
- Women with symptoms of headache, visual disturbances, abdominal pain or feeling unwell.

**Process:**
Arrange for a woman to attend face to face appointment in day assessment unit or antenatal clinic and check eligibility for self-monitoring of blood pressure. Provide antenatal (or postnatal) check as usual. Women may already own their own validated monitor (which can be used).

The home monitors can be obtained from DAU on each site.
Ensure that women's contact details are up to date on hospital electronic system (home, mobile phone number, email) and update these as necessary.

Women who are suitable for self-monitoring should have a one to one training session on how to measure Blood Pressure (BP) using the equipment provided and how to record it on the monitoring sheet, with a midwife or doctor. They must also complete a blood pressure monitor loan form with the woman/person.

The woman/person should be given an information leaflet, which describes the technique of monitoring and the action to take at each threshold of Blood Pressure. They should be given written instructions on expected frequency of blood pressure monitoring determined by the Consultant as well as the contact details for the Maternity telephone triage 01903 285269, where they could call in for help.

All women suitable for self-monitoring should be entered in a register to be kept in the Day Assessment Unit on both sites. Women/people will be contacted by their community midwife weekly if PIH (gestational hypertension) or alternate week if stable pre-existing hypertension and asked to read out the BP recordings on their sheet or alternatively contact can be maintained via email with a screenshot of BP sheet which should be uploaded onto Medway.

BP and urinalysis, current antihypertensive regime and follow up plan must be recorded on Medway following discussion with the on-call obstetric team or the woman/person's named consultant.

It is anticipated that women with chronic hypertension will require home BP monitor for entire pregnancy and be followed up in consultant led antenatal clinic/ maternal medicine clinic.

Women with suspected PET/PIH should be discussed with oncall obstetric team, and follow the NICE guidelines for management of hypertension in pregnancy (www.nice.org.uk/guidance/ng133) – which includes weekly 'PET' blood tests and urinanalysis in women/people with PIH, which may be done by community midwife. Women/people with suspected pre-eclampsia require twice weekly blood tests and should be reviewed in DAU.

Postnatal women with hypertension should monitor BP daily for 10-14 days and see their GP at 2 weeks post-partum. (See appendix 8)

Ensure the woman/person is aware of who (i.e. the labour ward/triage) and when to contact if the BP rises above the target readings. It is the responsibility of the patient's named community midwife and the labour ward/obstetric team to oversee the care of the postnatal women with hypertension in liaison with the maternal medicine consultants until they are discharged back to the GP (usually between 2and 6 weeks postnatal).

Monitors should be returned to DAU (SRH or WH) by 6-8 weeks after birth at the very latest. Community midwives can facilitate the return of the monitor to DAU.

Once returned, wipe the blood pressure monitor thoroughly with a cleaning wipe, and check that all components are correct (e.g. cuff, connector, batteries).

(NB Consider how to record details of blood pressure monitor loans and associated uptake and outcomes as a service evaluation).

**Educating women on how to perform and record blood pressure:**
Women need to be trained in the appropriate technique for taking Blood Pressure.
They should be informed about the following and provided with written information:

- Resting for 5 minutes before taking blood pressure.
- Do not smoke or drink caffeinated beverages for at least 30 minutes before.
- Take the blood pressure reading before (not after) eating.
- Sit comfortably with back supported and both feet on the floor (do not cross their legs).
- Elevate arm to heart level on a table or a desk.

Ask the woman/person to take her blood pressure twice, at least one minute apart and write the second blood pressure down in the Blood Pressure monitoring sheet provided.
Give written instructions on expected frequency of blood pressure monitoring.

**Validating the monitor:**
Blood Pressure monitors once purchased will be inspected by the EBME department and signed off as fit to use, this lasts for one year. After the year it will need to go back to EBME for re-validation.

**Please see Home BP Pathway for appendices for forms and written information to give to women monitoring their BP at home.**

## Appendix 7: GP referral letter for postnatal care

St Richard's Hospital
Spitalfield Lane
Chichester
West Sussex
PO19 6SE
Tel: 01243 788122

Worthing Hospital
Lyndhurst Road
Worthing
West Sussex
BN11 2DH
Tel: 01903 205111

www.westernsussexhospitals.nhs.uk

# URGENT – for immediate review by GP

Date:

Dear Doctor,

This is to inform you that your patient (name)……
has been discharged from Worthing Hospital / St Richards Hospital (delete as appropriate) on …… following a delivery of a male/female infant. The baby was delivered at .....weeks of gestation by:
(Mode of delivery)

She has been diagnosed with pre-eclampsia/pregnancy-induced hypertension and has been put on the following treatment regime:

**Plan**: Please continue with the antihypertensive treatment for 6 weeks.

At 6-8 week postnatal appointment please perform urine dipstick test and BP measurement.

Please refer to specialist any women who remain on antihypertensives or have persistent proteinuria to assess for kidney function.

Other comments:

Thank you
Yours faithfully,

## Appendix 8: Postnatal management of hypertension flow chart

**Community & Secondary Care Pathway for managing hypertension in the postnatal period**

**Women/people with complicated PET should remain in hospital for 48-72 hrs post birth. If medicated antenatally or in intrapartum, should stay in for 4hrly BPs at least for first 24hrs.**

- Discharge criteria:
  - No symptoms of PET.
  - BP is 150/100 or less (with or without treatment).
  - Blood results are stable or improving.
- Plan in place:
  - Who will provide follow-up care, including medical review if needed.
  - Frequency of blood pressure monitoring required.
  - Thresholds for reducing or stopping treatment.
  - Indications for referral to primary care for blood pressure review.
  - Self-monitoring of symptoms.
- Obstetric Team to phone discharge through to GP and follow up with letter (appendix 7).

- Issue with SelfBP monitor upon hospital discharge.
- Discharge with 28 days of medication, if required.

**Unmedicated Hypertension**

- Once discharged - BP daily day 3-5 post birth.
- If BP abnormal on days 3-5, continue on alternate days until normal.
- Consider anti-hypertensives if higher than 140/90. Recommended if higher than 150/110.

**Medicated Hypertension**

- Daily BP for 10-14 days post birth

**GP Appointments**

- **2 weeks** - see GP post birth.
- **6-8 weeks** - GP appointment to dip urine dip, BP check & refer for kidney function if woman/person remains on medication or has persistent proteinuria.

Monitors should be returned to DAU (SRH or WH) by 6-8 weeks after birth at the very latest. Community midwives can facilitate the return of the monitor to DAU.

**It is the responsibility of the patient's named community midwife and the labour ward/obstetric team to oversee the care of the postnatal women with hypertension in liaison with the maternal medicine consultants until they are discharged back to the GP (usually between 2 and 6 weeks postnatal).**