

Uterine artery Doppler ultrasound measurements and your pregnancy pathway

**Uterine artery Doppler ultrasound
measurements at 20 weeks and how
they guide your pregnancy care**



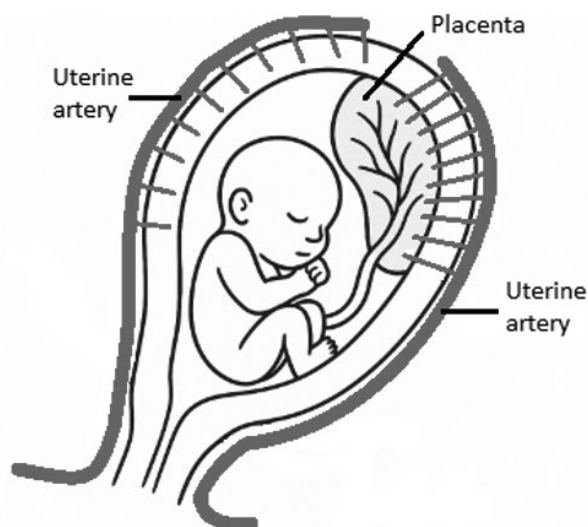
Why we are giving you this leaflet

At the time of your 20-week anomaly ultrasound scan we now offer to take Doppler ultrasound measurements of your uterine arteries. This leaflet will explain what these measurements are, why they are important, and how we can use them to help plan your pregnancy care.

Uterine artery Doppler ultrasound measurements

Your uterine arteries are blood vessels that carry blood to your uterus (womb). You have two uterine arteries, one on each side of your uterus. They feed the placenta. A good blood flow in these arteries is more likely to support the healthy development of the placenta, and in turn the growth of your baby.

Doppler ultrasound can be used to measure the flow of blood in your uterine arteries. It uses sound waves to check **if the blood is flowing easily (low resistance) or with more difficulty (raised resistance)**. The Doppler ultrasound measurements of your uterine arteries take about 5 minutes and will not harm you or your baby.



What the results mean

If the blood is flowing easily (low resistance), then a good, steady amount of blood is reaching your baby helping them to continue to grow well. It also indicates a lower chance of you developing high blood pressure (including pre-eclampsia) during your pregnancy.

If the blood is flowing with more difficulty (raised resistance) there is a higher chance that, during your pregnancy, your baby may not grow as well as expected, or that you might develop high blood pressure (including pre-eclampsia). It does **not** mean that you or your baby are unwell at the time the measurements are taken.

Why problems with growth or high blood pressure matter

1 in 20 babies do not grow as expected inside the uterus. This increases the chance of pregnancy complications and premature birth. In the most serious cases it can sadly lead to a baby dying in the uterus (a stillbirth).

1 in 20 people will develop high blood pressure during pregnancy. This increases the chance of damage to the kidneys, liver and brain. In the most serious cases, if the blood pressure is not controlled, it can lead to a stroke, seizure (eclampsia) and even death.

How uterine artery Doppler ultrasound measurements are used to plan care

If we know your baby has a higher chance of not growing as well as expected, or we know you have a higher chance of developing high blood pressure (including pre-eclampsia), we will offer extra ultrasound growth scans and blood pressure checks. This helps us spot any problems as soon as possible, so you get the right care at the right time, and the risk of you or your baby having complications can be reduced.

Information used to plan the extra ultrasound growth scans and blood pressure checks

Your:

- age
- height to weight ratio (BMI)
- ethnic origin
- booking blood pressure.

If you:

- smoke
- are taking aspirin
- had any medical problems before pregnancy
- have previously had a small baby.

Information from your blood tests and ultrasound scan at 12 weeks of pregnancy.

In addition to the uterine artery Doppler ultrasound measurements, we use lots of different information (see Box 1.) to make sure the number of extra ultrasound growth scans and blood pressure checks is right for you; not too many and not too few.

The final pattern of ultrasound growth scans and blood pressure checks is called your **'pregnancy pathway'**.

'Pregnancy pathways'

We currently have **5 pregnancy pathways**.

- Pathway A
- Pathway C
- Pathway D0
- Pathway D1
- Pathway D2

We can tell you which pathway is right for you as soon as we take your uterine artery Doppler ultrasound measurements (as part of your 20-week anomaly ultrasound scan).

Table 1. (on the next page) shows the pattern of



ultrasound scans and

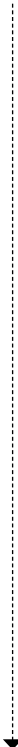


blood pressure checks

for each pregnancy pathway.

(We offer a urine dipstick test with each blood pressure check. Protein in your urine can be a sign of pre-eclampsia.)

Table 1

Pregnancy Pathway	A	C	D0	D1	D2
Who will lead my care?	Midwife or Hospital Consultant	Midwife or Hospital Consultant	Hospital Consultant	Hospital Consultant	Fetal Medicine Consultant
25 weeks	Blood pressure * 	Blood pressure * 	Blood pressure + 	Blood pressure + 	Individual plan of ultrasound growth scans and blood pressure checks determined by your Fetal Medicine Consultant 
28 weeks	Blood pressure 	Blood pressure 	Blood pressure Ultrasound 	Blood pressure Ultrasound 	
31 weeks	Blood pressure * 	Blood pressure * 	Blood pressure 	Blood pressure 	
32 weeks		Ultrasound 	Ultrasound 	Ultrasound 	
34 weeks	Blood pressure 	Blood pressure 	Blood pressure 	Blood pressure 	
36 weeks	Blood pressure Ultrasound 	Blood pressure Ultrasound 	Blood pressure Ultrasound  +	Blood pressure Ultrasound  +	
38 weeks	Blood pressure 	Blood pressure 	Blood pressure 	Blood pressure 	
39 weeks			Blood pressure 	Blood pressure Ultrasound  +	
40 weeks	Blood pressure * 	Blood pressure * 	Blood pressure 	Blood pressure 	
41 weeks	Blood pressure 	Blood pressure 	Blood pressure 	Blood pressure 	

Key:

- * Only if this is your first baby
- + This appointment will be in a Consultant-led Antenatal Clinic

How to spot problems with your baby's growth or your blood pressure

Changes in your body can be the first sign your baby is not growing as expected, or you are developing high blood pressure.

If you notice a change in the pattern of your baby's movements, or a decrease in your baby's movements, this can indicate a problem with your baby's growth.

If you have any of the following symptoms, this can indicate the presence of high blood pressure (including pre-eclampsia):

- a severe headache (that does not get better with paracetamol)
- problems with your eyesight, such as blurred vision or flashing lights in front of your eyes
- severe pain just below your ribs, or indigestion / heartburn type pain
- vomiting
- sudden swelling of your face, hands, or feet.

If you are **concerned about your baby's movements** or think you have **symptoms of high blood pressure**, call the Maternity Assessment Unit on **01865 220 221**. The unit is open 24 hours a day, 7 days a week.

What you can do

Aspirin can help the blood flow more easily in the uterine arteries, but only when started before 16 weeks of pregnancy. In some cases, we can tell as early as 12 weeks of pregnancy that an individual is more likely to experience problems with their blood pressure or their baby's growth, and we will recommend starting aspirin at this time.

For other people, the risk only becomes clear **after 16 weeks** of pregnancy, and at this point starting aspirin is no longer helpful.

If you smoke, you can help your baby's growth by **stopping smoking**. Please ask your midwife, or a doctor, if you would like help to stop.

How pregnancy pathways affect birth choices

If you are on **Pathway A, C, or D0**, and your **baby is growing well**, and your **blood pressure is normal**, then this does not affect your choice as to where, when, or how you give birth (although we would always recommend birth by 42 weeks of pregnancy).

If you are on **Pathway D1 or D2**, and your **baby is growing well**, and your **blood pressure is normal**, there remains a higher chance that the placenta will start coming away from the side of your uterus (womb) in labour (an abruption) or stop working before 42 weeks of pregnancy.

To help offset this risk, we recommend you give birth on the **Delivery Suite** at the John Radcliffe Hospital, so we can monitor your baby more closely in labour; and we also recommend you give **birth before 41 weeks of pregnancy**, as your placenta is more likely to be working well at this time.

Being on Pathway D1 or D2 does not affect your choice as to how you give birth. You can have a vaginal birth or a planned caesarean section.

If you are planning a vaginal birth, an induction of labour may be needed to help start your labour before 41 weeks of pregnancy. Your doctor will explain how an induction works, as well as the benefits and challenges of an induction, as part of your birth planning discussion.

If a problem with your blood pressure or baby's growth is found

If a problem with your blood pressure and/or your baby's growth is spotted, **we will discuss how your pregnancy pathway needs to be adjusted.** This may include additional tests and treatments, such as medication to lower your blood pressure (antihypertensives).

We will also discuss if and how your birth choices are affected. We may recommend your baby is born sooner, and we may also recommend how you give birth, e.g. by a vaginal birth or by a planned caesarean section. If a vaginal birth is planned, we will discuss if an induction of labour is needed to ensure labour starts before a particular week of pregnancy.

The plan will often evolve as new information from the additional tests becomes available and as your body responds to any treatment. **Please let us know if you need us to clarify the reason for any changes to your pregnancy pathway or care.** We will aim to answer all your questions and concerns.

Questions and concerns

If you are on **Pathway D0, D1, or D2**, you will have an Antenatal Clinic appointment with a doctor in the first few weeks after the 20-week anomaly ultrasound scan (see Table 1.). This will be an opportunity to discuss the uterine artery Doppler ultrasound measurements and your pregnancy pathway.

After this clinic appointment, if you have any further questions or concerns about the uterine artery Doppler ultrasound measurements or your pregnancy pathway, please contact your midwife. If your midwife is not available, you can contact the 'Pregnancy Pathway Team' via email at:

pathwayqueries.fetalmedicine@ouh.nhs.uk

If you are on **Pathway A or C** and have any questions regarding the uterine artery Doppler ultrasound measurements or your pregnancy pathway, please contact your midwife. If your midwife is not available, you can contact the 'Pregnancy Pathway Team' via email at:

pathwayqueries.fetalmedicine@ouh.nhs.uk

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

We would like to thank the Oxfordshire Maternity and Neonatal Voices Partnership for their contribution to the development of this leaflet.

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Oxford University Hospitals NHS Foundation Trust

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