Having a transcranial Doppler ultrasound scan (children with sickle cell disease)

Children's Outpatients

Information for Parents & Carers

Last reviewed: February 2025
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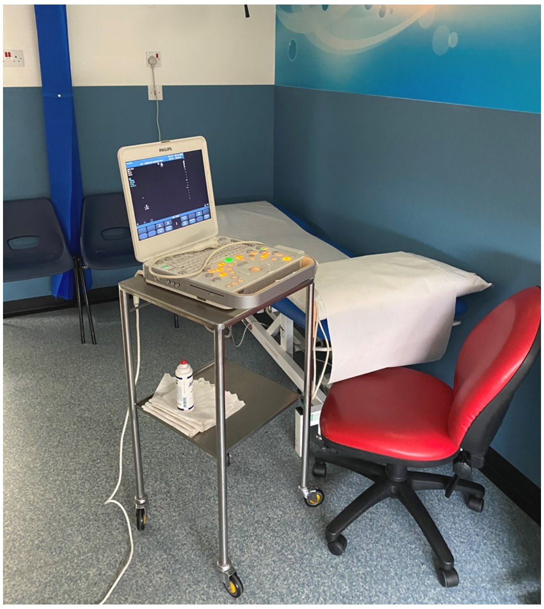
Introduction

Please read your appointment letter carefully. It tells you the time, date and which hospital you must go to for your appointment.

This leaflet tells you about your child's scan. Please read it carefully. It has important information and instructions.

What is transcranial Doppler (TCD) ultrasound scan?

A transcranial Doppler (TCD) ultrasound scan is a painless test of the blood vessels in the brain. A TCD scan uses sound waves we cannot hear. It is similar to an ultrasound machine used in a pregnancy scan.



The ultrasound probe (transducer) is the part of the machine that touches the side of your child's head next to the ear. It produces sound waves. These build up pictures of the blood vessels. We can see them on a screen.

The machine also uses something called the Doppler effect. It measures blood flow through the blood vessels. At times you may hear as a 'whoosh -whoosh' sound. The blood flow is also seen on screen as colour or waveforms.

There are no known side effects from having a TCD ultrasound scan.

Why does my child need a transcranial Doppler scan?

In sickle cell disease, blood vessels in the brain can sometimes be damaged. Sickle blood cells can cause the vessels to narrow, reducing the blood flow. This might damage the brain and cause a stroke.
Children with sickle cell disease have a higher risk of stroke. Luckily this is quite rare.

A TCD scan lets us find any narrowing in the blood vessels. By finding problems early we can treat before a stroke happens. We offer a scan to all children aged 2 to 16 years who have sickle cell anaemia or sickle beta thalassaemia.

What happens during the scan?

We will take you and your child into a room. We will explain the TCD scan to you. You can ask any questions that you may have.

Your child will need to be awake and lie down on a couch. You can sit next to them.

We put a water-based gel on the side of your child’s head near the ear.

We put a small ultrasound probe (transducer) over this area. You will hear a "whoosh-whoosh" sound when we find the blood flow .

The TCD scan does not hurt. You may need to reassure your child during the scan to help them stay still and relaxed.

A play specialist will be working in the Children’s Outpatient Clinic. They will be able to help prepare your child for the scan if needed. They can offer activities to keep your child still and relaxed during the scan.

How do I prepare my child for the scan?

No preparation is needed for the TCD scan. Your child may eat and drink as normal.

Who will be doing the scan ?

A specialist in vascular ultrasound (clinical vascular scientist) will do the scan.

As we are a teaching hospital, students may also be in the room. If you do not want any students to be in the room during your appointment, please let us know.

How long will it take?

This will vary for each child. It will depend on how well they keep still during the scan. It may take from 10 minutes to 30 minutes. We try to do the scan as quickly as possible. We do need to make sure that we get all the all the information that we need.

What happens after the scan?

The gel can be wiped off. You and your child can go home.

Sometimes your child’s scan may be part of a Children’s Outpatient Clinic appointment. If so, you will need to stay and talk to the consultant about the results and any follow-up appointments.

How do I get the results and what do they mean?

The result may be discussed with you during the scan or discussed with you later in clinic by your consultant.

The results will be reported by the clinical vascular scientist. They will be given to the paediatric haematology consultant who has asked for the scan.

The results can be normal, conditional or abnormal:

- A normal result means that nothing needs to be done now. The TCD scan will be repeated each year.
- A conditional result will mean that the TCD scan will be repeated within 1 to 3 months.
- An abnormal result means there is a higher risk having a stroke. The TCD scan will be repeated within 1 to 2 weeks. Other tests may be arranged, such as an MRI (magnetic resonance imaging) scan. Your consultant will explain this to you.

If you are not sure how to get your results please ask a member of staff after the scan.

What are the risks and limitations of a TCD scan?

There are no known risks with having a TCD scan.

We may not be able to do the scan if

- your child is not able to stay still for the duration
- the ultrasound waves cannot pass through their skull bone to create the picture of the arteries.

What are the benefits of TCD screening?

If we find severe narrowing of the arteries, we can start treatment such as blood transfusions. This can prevent your child from developing a stroke in the future.

Special requirements

If you have any special needs relating to a disability or need language or communication support, please call the phone number in your appointment letter as soon as possible. We can make arrangements to help support you.

Can I bring someone with me to my child’s appointment?

You may wish to bring a friend or relative to with you. This may be useful if you do not speak or understand English very well, or if you or your child have any special needs. They may not always be allowed into the examination room with you.

If you are bringing other children with you, please note that we do not offer childcare facilities. Hospital staff will not be able to look after other children during your appointment. Please bring another adult who can supervise any other children if needed.

Are baby changing facilities available?

Baby changing facilities are available. Please ask a member of staff who will be happy to direct you.

Shops and refreshments

Refreshments including hot/ cold drinks and snacks are available in the hospital. Please ask a member of staff for directions.

Contact details

For patients of Leicester’s hospitals:

Main switchboard:	0300 303 1573
Children’s Outpatient Clinic:	0116 258 5147
Children’s outpatient appointments:	0116 258 6225
Clinical Nurse Specialist:	07958 010060

If you are a patient at another East Midlands hospital and you have been referred to a Leicester hospital for this screening, please see your appointment letter for contact details and any queries you may have.

Further information

East Midlands Sickle Cell and Thalassaemia Network: www.emstn.org

How to give us your feedback

If you wish to make any comments about your visit to the Children’s Outpatient Clinic or if you have any suggestions about how we can improve our services, please speak to a member of staff.

If you have any questions, write them down here to remind you what to ask when you speak to your nurse/ doctor/ consultant:

اگر آپ کو یہ معلومات کسی اور زبان میں درکار ہیں، تو براہِ کرم مندرجہ ذیل نمبر پر ٹیلی فون کریں۔
على هذه المعلومات بلغةٍ أخرى، الرجاء الاتصال على رقم الهاتف الذي يظهر في الأسفل
જો તમને અન્ય ભાષામાં આ માહિતી જોઈતી હોય, તો નીચે આપેલ નંબર પર કૃપા કરી ટેલિફ઼ોન કરો

ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਹੇਠਾਂ ਦਿੱਤੇ ਗਏ ਨੰਬਰ ‘ਤੇ ਟੈਲੀਫੋਨ ਕਰੋ।
Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

Previous reference: SUR045-0513

If you would like this information in another language or format such as EasyRead or Braille, please telephone 0116 250 2959 or email equality@uhl-tr.nhs.uk

LEICESTER'S RESEARCH

Leicester's Hospitals is a research active trust so you may find research happening on your ward or in your clinic. To find out about the benefits of research and become involved yourself, speak to your clinician or nurse, call 0116 258 8351 or visit www.leicestersresearch.nhs.uk/patient-and-public-involvement