

Fetal and neonatal imaging programmes

**Building a better understanding of how
a baby's heart and brain develop,
before and after birth through research.**

An introduction to our research

King's College London and St Thomas' Hospital (including Evelina London Children's Hospital) are at the forefront of research helping to understand how organs, like the heart and brain, develop, from fetal life in the womb, to the neonatal period after birth, and into childhood.

Most of our research is based on MRI (magnetic resonance imaging) and ultrasound scans. These allow us to see inside the body – even before birth. As children grow, we can also assess their learning and skills, to better understand how changes early in life affect them later on. Our research is divided into four main areas.

1 During pregnancy

Our earliest research projects start before birth. These aim to improve our understanding of how the baby (particularly their heart and brain) and placenta develop in the womb.

We will invite you to come to one of our dedicated fetal imaging centres at St Thomas' Hospital. We may offer you an extra ultrasound scan, and in some cases, we may ask you to breathe oxygen through a mask during the scan. We can also show you images of your baby after the scan.

2 After birth

After your baby is born, we may ask you for an MRI scan of your baby. We perform scans in our dedicated neonatal MRI scanner, located on the neonatal unit in the north wing of St Thomas'.

Specialist neonatal nurses, doctors, and radiographers will look after your baby during the scan. The parents' room has a video link to the scanner room, and you will be kept informed of progress throughout.

3 After neonatal cardiac surgery

If your baby has congenital heart disease and needs an operation on their heart, we may offer a second scan. This scan helps us to better understand the impact of cardiac surgery on the baby's developing brain.

We usually arrange this scan before your baby is discharged from Evelina London.

4 At two years of age

If you took part in one of our fetal or neonatal projects, we may invite you to bring your baby back to Evelina Hospital shortly before their second birthday, for a play assessment with an experienced developmental paediatrician.

The visit involves a standardised play assessment that analyses your child's development in terms of their movement, language and understanding. We will also ask you to complete questionnaires about your child's personality and behaviour.

What happens during an MRI scan?

An MRI scanner uses a large magnet to produce images. For scans during pregnancy, we will spend time before the scan making sure you are comfortable. It can be noisy in the scanner, so we will give you headphones so you can listen to music. We may ask you to breathe oxygen through a mask during the scan.

If your baby has an MRI scan, we prepare them in a comfortable blanket. Your baby has their usual feed and we carefully put on ear protectors. We start the scan once they have fallen asleep and monitor them closely throughout. If they wake up, we stop the scan immediately and soothe them back to sleep. The scan takes a maximum of 90 minutes.

Once the scan is complete, you will be able to see the images that have been taken and these will be explained to you by one of our team. If appropriate, the team may go on to analyse the images in detail and generate a clinical report. This report is then sent directly to the doctors looking after you or your baby.

Is it safe?

Yes. MRI is known to be safe during pregnancy for both mother and baby, and we follow strict international guidelines.

What do we hope to learn from this research?

We hope to improve our understanding of the complex issues that affect how the heart and brain develop before and after babies are born. We also hope to see how these factors affect the child's future learning and brain development.

In the future, we hope that this new information could help us to offer better support and treatments for our patients and their families.

Contact us

To read more about our studies,
please visit

w: ifindproject.com

w: developingconnectome.org

w: placentaimagingproject.org

You can also call our research line,

t: 020 7188 7083 with any questions.

For more leaflets on conditions,
procedures, treatments and services
offered at our hospitals, please visit,

w: www.evelinalondon.nhs.uk/leaflets

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A list of sources is available on request