



Radiological investigations (X-rays and scans) of suspected physical abuse

This information is for those with parental responsibility for children who need X-rays and scans when there are concerns raised for a child's welfare.

Why are tests needed in this situation?

NHS hospitals and all their employees have a duty to protect children. Staff are encouraged and expected to raise concerns if they believe the care or welfare of a child is at risk. Although this can be upsetting and difficult for those with parental responsibility, the child's wellbeing and safety comes first. If any concerns are raised, it is important that these are investigated fully. As part of the investigation it is essential to identify any injuries. In younger children and babies, injuries can be difficult to find. For example, bruising on the surface of the brain can occur without any apparent injury to the outside of the head. Similarly, bones may be broken without any obvious external signs. X-rays and scans can help to diagnose these injuries.

What X-rays and scans will be needed?

A baby or young child will require a skeletal survey X-ray examination and a computed tomography (CT) head scan. Other tests may also be necessary, which could include ultrasound, nuclear medicine or magnetic resonance imaging (MRI) scans.

What is a skeletal survey?

This examination takes place over two visits about two weeks apart. You will be given an appointment for the second visit once the first appointment is complete.

First appointment

The skeletal survey is carried out by appropriately educated and trained radiographers who are skilled in dealing with children. They will help you and your child throughout the examination. A nurse, or other healthcare professional, will also be present to help and support you and your child. A skeletal survey is an X-ray examination of the whole body and will involve around 20 separate X-ray images, which can take up to an hour to perform. Your child will need to keep still for each image taken. You may be asked to help hold your child still although toys and other distractions will be available.

The staff present will be able to help you in holding your child safely, so as to cause as little distress as possible to both you and your child. You will need to wear a special protective apron if sitting with your child to prevent your own exposure to X-rays. **If you are pregnant, or could be pregnant, you must tell the radiographer.** You will not be allowed to hold your child in this case. It is not unusual for a child to become distressed or grizzly during the procedure due to the need to be kept still for the images. You will be able to comfort your child between X-ray images.

Second appointment

Sometimes recent injuries are not visible initially and will only be seen on images obtained later. The skeletal survey examination is not complete until a shorter second series of images has been taken. You should ensure your child returns for the second appointment 11–14 days after the first series. You will be given an appointment to bring your child back for these images. The process of taking the images will be very similar to your first appointment.

CT brain scan

A CT scan is performed by experienced radiographers and produces images of the brain and the skull. The scan is relatively quick although your child will need to lie very still. If you are not pregnant you may be able to stay with your child. Sometimes, sedation may be used to help to keep your child still.

MRI scan

It may be necessary for your child to have an MRI scan of their brain and other areas. This will be performed by experienced radiographers. The MRI scanner looks similar to a CT scanner, but the interior is more like a tunnel. An MRI scan can take up to one hour and is noisy. Your child will need to be perfectly still for this and may need a general anaesthetic. The anaesthetist will explain to you the details of the anaesthetic before your child has the MRI. You will be asked to provide your agreement for this procedure to be undertaken.

Can I stay with my child at all times?

Those with parental responsibility are able to stay in the room with their child during the majority of examinations, with the exception of those performed under general anaesthetic. If you are allowed to stay, the radiographer will tell you where to stand/ sit and will ensure that you and your child are safe. Sometimes, you may be asked to assist staff in holding your child. The radiographer will help you to do this safely. You do not have to remain in the room if you choose not to, as there will be experienced health staff present to look after your child. In the X-ray or CT scan room you will be required to wear a heavy protective apron to protect you from the scattered radiation. In the case of MRI, Radiographers will go through a checklist with you to ensure that it is safe for you and your child to be in close contact to the MRI magnet. **If there is any possibility that you may be pregnant, please tell the radiographer as you will not be allowed in the scan room.** A baby in the womb can be particularly sensitive to the radiation of an X-ray or CT scan. If you are, or may be, pregnant you can accompany your child to the X-ray department. However, you will not be allowed in the actual X-ray or CT scanning room when the X-rays are being used. Professional health staff will always be there to look after your child.

Risk of radiation

We are all exposed to natural background radiation. This is made up of cosmic rays, radon; from some foods and from the ground. Every X-ray gives us a small additional dose of radiation. A skeletal survey is equivalent to a few months' background radiation. A CT head scan is equivalent to about 18 months' background radiation.

These extra exposures to radiation slightly increase the lifetime cancer risk but the increase in risk is very small. Your child will be exposed to the minimum number of X-rays and scans

needed to adequately complete the examinations. Before any examination that uses radiation is carried out, the benefits of having the examination are closely weighed against the risks of the radiation itself. All X-ray doses are kept as low as reasonably practicable to ensure that images of a high diagnostic quality are obtained without exceeding accepted doses. This is particularly the case with children as they are still growing and more susceptible to radiation. The radiographers will use techniques to try to ensure that they achieve the correct X-ray first time and use various methods to keep the dose to your child as minimal as possible. Your child will not be exposed to any more radiation than needed to gain the examinations required.

Further information

For further information:

- www.nhs.uk/conditions/Radiation/Pages/Introduction.aspx
- www.gov.uk/government/collections/radiation-risks-from-low-levels-of-ionising-radiation
- You can also seek further information from your radiographer.

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

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