Introduction
This leaflet aims to provide you with information about differing types of external fixation devices that your consultant has discussed with you and proposes to use in the treatment of your child. It will explain what occurs while your child is in hospital and the aftercare once you are home. If you have further questions please do not hesitate to contact those listed below.

Background
The use of this type of equipment may be employed in differing situations:

- Leg length discrepancy – one leg is longer than the other possibly causing pain and difficulty with walking. To allow lengthening of the long bones (those in the legs being the upper femur and lower tibia) the bone in question is surgically broken and a frame attached to give support and allow for lengthening. Pins from the frame are attached either side of the break through the skin with a barrel (or barrels) between. Via a type of key, the barrel(s) is turned so lengthening the barrel allowing a space to develop between the ends of the bone. This is a very gradual process – usually the barrel is turned four times a day giving 4mm of space. Once this space is thought to be at the correct width the barrel is locked. As with any break, new bone is then laid down filling in the space and so lengthening the bone.
- A misshapen hand or foot – a frame is attached encircling the hand or foot with wires leading from the frame through the soft tissue into the bones of the foot or hand. These wires are carefully placed at exact points in the child’s foot or hand to allow for the best result. Again specific turning mechanisms are used to allow these wires to lengthen and shorten thus turning the hand or foot into an improved position and shape.
- Mal union of a bone after a break. A fixator is applied to allow support and a means to allow the bone to unite appropriately.

Different Frames
- Ilizarov frame. This frame was developed in Russia and since then has been used widely throughout the world. It consists of a number of circular rings which encircle the areas of concern. Wires are inserted into the bone and are then attached to the circles as required. The lengthening apparatus is then attached. A spanner or Allen key is used to lengthen the barrels.
- Taylor Spatial frame. This is another circular frame with dynamic barrels used in lengthening. A computer generated programme is used to work out the appropriate turns.
- Orthofix fixator. This is a fixator made up of a cylindrical barrel positioned on the outer aspect of a limb with fewer, thicker pins.

Whilst considering this way forward in your child’s care you will have discussed the procedure with your doctor so you fully understand what is involved. If you wish it may also be possible for you to
meet with a family who have been involved with this treatment to give you a better idea of how it will affect general day to day family life. Once the decision has been made to go ahead with this treatment you will be given a date for surgery. You will be admitted to Ward 10 on the fourth floor of the New Victoria Wing at the RVI.

On admission
- When you arrive you will be met by a member of the nursing staff who will show you and your child around the ward and to your child’s bed.
- You will be asked some questions about your child’s health and usual routine to help us during their stay.
- A record will be taken of your child’s temperature, pulse, breathing rate, blood pressure and weight.
- A doctor will examine your child and a blood test may be taken to check certain levels in your child’s blood and to allow for a blood transfusion to be given safely if needed. A local anaesthetic cream called EMLA will be used to numb the area so this should not hurt.
- Swabs may be taken from your nose, throat and groin area to check for infection.
- You and your child will be seen by the consultant or a member of their team who will explain more about the operation and ask you to sign a consent form. Please ask any questions you have. The doctor will use a pen to mark the area where the surgery will take place.
- An anaesthetist will also visit to explain about the anaesthetic. You will be told what time your child must stop eating and drinking before the operation. The anaesthetist will also explain the pain relief which will be given after the operation. Again, please ask if you have any questions or concerns.
- Family/carers can help with patient care as much or as little as the patient and they feel comfortable. Accommodation is available for one parent/carer to stay with a child while they are in hospital.

What happens before surgery?
- In preparation for surgery, a nurse will apply local anaesthetic cream on the back of your child’s hands. This will numb the skin to allow a small tube (cannula) to be inserted. The anaesthetic medicine is given through this tube.
- A gown will be given for your child to wear.
- Your child will be taken to theatre by a member of staff. You may accompany your child if you wish.
- You may go with your child to the anaesthetic room until they are asleep. If you do not want to do this, a member of staff will go with your child.

What happens after surgery?
- After surgery your child will go to a recovery area. They will be looked after by a nurse until they are ready to go back to the ward.
- A member of your family/carer can come with the nurse who brings your child back to the ward.
- When your child gets back to the ward, checks of their blood pressure, breathing and pulse are made. Oxygen will be given via a mask or small tubes at the edge of the nose until they no longer need it.
- Your child’s level of pain will be checked and pain relief given as needed.
- Fluids will be given through a drip until your child is able to eat and drink as usual.
• Your child will have the area around the frame carefully watched for signs of swelling and any bleeding which may occur. Both of these are normal after this surgery. Your child’s leg (or arm) may be raised for comfort and to help prevent swelling.
• For the first three days or, as thought necessary, your child’s pin sites will be cleaned and redressed on a daily basis. This may be quite upsetting and uncomfortable for them. With the use of pain killers and distraction therapy we will try and make it as comfortable as possible.
• Your child’s consultant or a member of their team will check your child’s recovery and advise when they can be moved.
• You will be given advice from physiotherapy and occupational therapy about safely handling and moving your child.
• Arrangements will be made for any equipment you may need at home. Your child will not be discharged home until you and those involved in caring for your child are happy it is safe.

**Things to look out for:**
• Loose frame or pins which may cause unexpected pain.
• A little redness around the pin site is to be expected.
• Please report any leakage of yellow or green pus, more pain or that your child becomes unwell. It will have been explained that one of the complications can be infection. If thought appropriate this can usually be treated quickly with oral antibiotics.

Once the required amount of treatment has been given the frame will be removed under a general anaesthetic, another admission to hospital of shorter duration. To protect the bone or to ensure the foot stays in the best position a plaster cast may be applied or a splint used.

**Useful information**

Useful websites
- [www.ward11.roh.nhs.uk/katy.html](http://www.ward11.roh.nhs.uk/katy.html)

**Contact Details**

If you have any problems or concerns please do not hesitate to contact Ward 10 at any time on 0191 2826010 (direct line) or contact your GP.

**Other contacts**

Julie Allen/Sharon Solan, Clinical Specialist Physiotherapists 0191 282 1976 Weekdays between 8.30am and 4.30pm sharon.solan@nuth.nhs.uk julie.allen@nuth.nhs.uk

Maggie Johnston, Specialist Nurse (Paediatric Orthopaedics) 0191 282 9271 Weekdays between 8.15am and 4.15pm maggie.johnston@nuth.nhs.uk

**For further information**

The Patient Advice and Liaison Service (PALS) can offer on-the-spot advice and information about the NHS. You can contact them on freephone 0800 032 02 02 or e-mail northoftynepals@nhct.nhs.uk
Useful websites
If you would like further information about health conditions and treatment options, you may wish to have a look at the NHS Choices website at www.nhs.uk. On this website there is an information prescription generator www.nhs.uk/ipS which brings together a wealth of approved patient information from the NHS and charity partners which you may find helpful.

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