



**Alder Hey Children's**  
NHS Foundation Trust

**Sefton Community**

**Children's Occupational Therapy**

**Five Steps to Function**

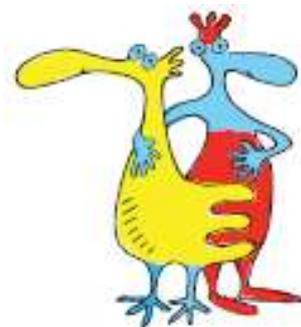
# **Fine Motor Skills**



This booklet contains lots of information and advice to help your child to develop their fine motor skills.

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# What are the 'Five Steps to Function'?

Occupational Therapy is all about function! Through purposeful activities, occupational therapists can support and help children and young people achieve their goals in daily life.

The following five steps are steps to consider when completing any activities with your child:

## 1. Promote independence

Whenever possible, children should be encouraged to take part in activities, whether it is for the whole activity or part of the activity, so they are taking responsibility for their actions and developing their independence.

## 2. Develop skills

All activities that your child takes part in will develop their skills. Activities that are familiar can become more fluent or faster, and new activities present challenges so children can make sense of them, problem solve and learn to adapt to achieve success.

## 3. Increase confidence and self-esteem

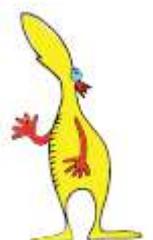
When children try something new and are successful, or gain success through practicing an activity they have been trying for a long time, their confidence increases. This is especially true when children feel that their peers are able to do something that they cannot. This sense of achievement helps children when trying other new activities, as they can reflect and be reminded of their previous achievements.

## 4. Make activities meaningful

When activities are meaningful to a child they are more motivated to try them. Activities that are themed around your child's interest can make a big difference to their enthusiasm! If your child is old enough, they can talk with you about what they want to achieve and set goals themselves. This could be making a sandwich, riding a bike, or simply doing an activity without having to ask for help.

## 5. Have fun!

One of the most important parts of learning something new is that it is fun! Children are much more willing and motivated to take part in activities that are fun. Whilst new activities can lead to frustrations, stay patient and relaxed. Encouraging your child to keep trying even when they have made mistakes is really important.



# Why are fine motor skills so important?

Fine motor skills involve using the small muscles of the hands, wrists, and fingers. It is important for children to develop these skills so that they are able to take part in everyday tasks such as writing, eating and drinking, and dressing, to help them achieve goals in their daily life, and develop their independence.



## Where to begin?

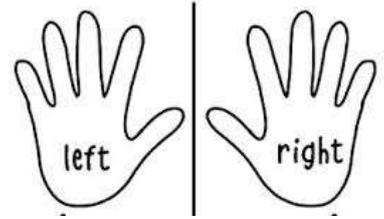
To be able to complete fine motor activities effectively, children need to master a number of fine motor skills using small movements of their hands, wrists, and fingers.

- **Hand dominance:** Your child should have a dominant (preferred) hand.
- **In-hand manipulation:** Your child should be able to move a small object around using one hand.
- **Pinch and grip strength:** Your child needs to use the small muscles in their hand and have enough strength to complete refined movements.
- **Pincer grasp (Fingertip and thumb grasp):** Your child should have the ability to pick up and hold items using their fingertips and thumb e.g. coins, pegs, counters.
- **Bilateral coordination (Using hands together):** Your child must be able to use their hands together in the same or alternating movement e.g. using a rolling pin, or stacking cups.
- **Finger dexterity:** Your child should have the ability to adapt their movements to different activities and be able to separate both sides of their hand and isolate their fingers:
  - **Separation of both sides of the hand:** Your child should have developed a 'power side' of the hand (thumb, index and middle finger) and a 'support side' of the hand (ring and pinky finger) e.g. to pick coins out of a purse, hold a pencil
  - **Finger isolation:** Your child must be able to move each of their fingers without moving the others e.g. pointing using index finger, thumbs up, pinky promise.
- **Hand-eye coordination:** Your child should have the ability to coordinate movements of their eyes and hands to manipulate tools and objects e.g. posting coins in a box
- **Shoulder and core strength:** Your child should have good strength in their shoulders and core to be able to complete fine motor activities.



## Hand dominance

Usually a child will develop a dominant hand by the age of five or six, although sometimes not until seven or eight. Once this dominance occurs this hand is used for fine motor activities and as a result develops superior skill. The non-dominant 'helping hand' becomes skilled in supporting the dominant hand e.g. holding a container while the dominant hand unscrews the lid.



When a child is slow to display clear hand dominance, they will alternate hand use for far longer than most children, and neither hand will develop the precision of skills that usually occurs in the dominant hand with practice. This can cause confusion when these children progress through school and learn activities that require their hands to do different actions at the same time such as writing, drawing and cutting with scissors.

### Helpful tips:

- **Don't force it** - It is important not to force a dominant side onto your child. Don't assume that your child will have the same dominant hand as you.
- **No clear dominance** - If your child is not showing a preference for either hand, encourage them to complete lots of activities that involve using their hands together in front of their body such as using a rolling pin with playdough or baking. Practice activities that use one hand at a time alternating between the two such as stacking cups. When one hand starts to be used more often for one-handed activities, your child is ready to practice activities with the hands doing different jobs e.g. cutting or writing and you can encourage a dominant side for their preferred hand.
- **Leaving one side out** - If your child is completing activities with one hand and leaving the other hand out completing either leaving it by their side or on their lap, provide activities that your child must use both hands to complete, to increase awareness and use of that arm. Sometimes verbal prompting is needed for them to use their 'helping hand' and this could be to rest on the paper while they are drawing, or holding the book while the other hand turns the pages.
- **Different activities, different hands** - Sometimes children will be better using one hand for one activity, then their other hand for another activity and it can be difficult to know for certain which is their dominant hand. Try placing a pencil or object in front of them on the table and ask them to pick it up. Your child will likely use their dominant hand to pick up the pencil or object automatically.



## In-hand manipulation skills

In-hand manipulation is perhaps the most difficult fine motor skill to achieve. It is the ability to move and position objects in one hand without the other hand helping. Many everyday tasks need this high level hand skill such as: positioning a pencil when writing and drawing; positioning buttons, zippers, poppers and laces for dressing; and using tools, handling nuts and bolts, nails, turning a screwdriver.

In-hand manipulation can be divided into three different types of skills:

- **Translation** – moving objects between the palm and fingertips, such as moving coins from the palm to the fingertips to place them into a vending machine slot.
- **Shift** - moving objects between the fingers, such as walking the fingers up and down the pencil from one end to the other.
- **Rotation** – turning objects around using the pads of the fingers. There are two types of rotation: *simple* – rolling a small object between the thumb and finger tips e.g. opening a small jar; and *complex* – turning an object end over end e.g. flipping a pencil over.



If your child finds in-hand manipulation difficult, you may notice them doing the following:

- Using both hands for activities that would usually need only one
- Passing objects from one hand to the other; or using additional support such as their body or the table top to help reposition an object
- Dropping objects frequently when trying to move them in their hand, isolate their fingers, or manipulate small objects using one hand
- Taking longer to complete activities when they have to move the object from palm to fingertips

### Helpful tips:

- **Big to small** – Bigger objects are easier for your child to practice with at first, but make sure the objects actually fit in your child's hand, if it is too big that will be another challenge for them! As your child becomes more skilled turning a bigger object in their hand, reduce the size.
- **Let them look** – Encourage your child to look at what they are doing with their hand when practicing, so they are not only feeling their fingers moving but seeing how they are doing it.
- **Follow your lead** – Showing your child how you do something is one of the best ways for them to learn and practice doing it themselves. Break the steps down, moving your thumb and fingers slowly, and stopping when you make even a small movement, so your child can reposition their hands, so they are the same as yours.
- **Dominant hand first** – Always practice in-hand manipulation activities with the dominant hand first. This will increase success and motivation to try with the other hand.
- **Hold their hand** - If your child uses the other hand to manipulate objects held in the dominant hand (to avoid finger movement), help by holding your child's non dominant hand (or encourage the child to sit on it or rest it on their lap).

## Pinch and grip strength

The small muscles in the hands make it possible for the hand to move in many different ways including defining the arches of the hand, bending the knuckles, and moving the fingers and thumbs separately. It is important for your child to develop



the strength in these muscles so that they have enough pinch (finger) and grip (hand) strength to be able to complete everyday tasks, such as climbing, holding a pencil, getting dressed.

Children who have difficulty with fine motor skills often have weak hands and fingers, and will use a more awkward whole-hand grasp, because they lack the strength and coordination in their fingertips and thumbs that is needed to complete these activities. Children will often avoid activities that are difficult for them and so they do not develop the appropriate strength needed to carry them out. Children need to be able to adapt their hand movements for the task that they are completing, and also vary the strength they need to do so. For example, opening packets or bottle tops requires more strength than picking up a pencil however using the pencil for a length of time requires enough pinch and grip strength to keep going.

### Helpful tips:

- **Activities with resistance** - Any activity that requires pinching or gripping against resistance will increase your child's hand and finger strength e.g. playdough, baking activities. Pushing or pulling with the arms against resistance will strengthen arm and hand muscles. The greater the resistance, the better the exercise! Be sure to increase resistance gradually as your child's strength increases, to allow them to experience success!
- **Strong arms and shoulders too** – Make sure activities are not just completed while your child is sitting down, or at the table top. It is important for them to develop their shoulder stability and arm strength too, so if possible, encourage your child to use the monkey bars or climbing frame in the park, play bat and ball, help with the gardening. These all require increased strength of the hands, but through bigger movements, and will be beneficial for your child to take part in.
- **Make it fun** – Your child may find hand strength activities hard because their hands or fingers may ache, and so they may avoid doing them. Making activities fun is a good way to keep them motivated. This could be by adding a timer or doing some hand exercises together such as pushing hands together, scrunching up used packets or paper as fast as they can.
- **Keep activities short** – Little and often for any activities to develop hand strength will be most helpful for your child. Hand strength activities can be tiring on the hands and fingers, and if you want your child to complete another activity after it they may not be too enthusiastic. So practicing short activities 2-3 times a day will increase success and keep your child motivated to take part. This could be whilst they are waiting for their bath to run, sitting at the table waiting for their tea, or in the car on the way to school.

## Pincer grasp (Fingertip and thumb grasp)

A pincer grasp is when the index finger and thumb work together to hold an item. It is an important skill for your child to develop so they are able to carry out everyday tasks, such as holding a pencil, buttoning a shirt, using cutlery.



A child's ability to use a pincer grasp is affected by their hand strength. If they have reduced hand strength, your child may find it difficult to position their finger and thumb in this way, so will often try a different hand position to achieve the same result e.g. crossing their thumb over their fingers when holding a pencil.

If your child finds it difficult to use a pincer grasp, you may notice this when they are:

- Using small toys and blocks
- Completing independence skills e.g. fastenings on clothing
- Using cutlery
- Holding a pencil
- Cutting with scissors

### Helpful tips:

- **Talk about it** – Give your child different items of varying size and weight but they can only use a pincer grasp to pick them up. Ask your child which items were harder to pick up and which were easier. This may be more difficult for a younger child, so you may just have to watch what they do, and see whether they avoid certain items or change their grasp to be successful. If your child is old enough talk about what they need to do to make the task easier e.g. do they need to squeeze their fingers harder together so they don't drop the item? This activity will also help you work out if your child needs to develop their hand strength, so it would be helpful to do some hand strength activities with them.
- **Action songs and rhymes** – Songs where your child needs to move their fingers and thumbs in different directions are a great way to practice changing their grasp. If your child is older, they may just need a verbal prompt such as 'pinchy fingers' so they know what position they need to put their fingers in.
- **Visual prompts** – If your child struggles to remember where to position their fingers on a pencil or cutlery, placing coloured stickers or marks for finger placement can be helpful so that they develop independence to correct the position themselves.
- **Practice, practice, practice** – The more opportunities your child has to practice using a pincer grasp, the easier it will become for them. Asking your child to count the coins in your purse or wallet, or their money box is a fun way of practicing this grasp. Helping with chores around the house, such as using clothes pegs and helping to hang the washing out on the washing line or maiden. Whilst it is important to practice using their dominant hand, be sure to practice activities with their helping hand too – don't leave it out!



## Bilateral coordination

Bilateral coordination is an important skill for children to develop as it involves the coordination between both sides of the body, hand dominance, and using two hands together to carry out a variety of tasks.



This ability develops throughout childhood starting with uncoordinated movement patterns of the two arms to well-controlled manipulation of objects, with each hand doing different actions at the same time. There are many reasons why this ability to use both hands together does not develop, and difficulties with bilateral co-ordination can be easily seen in any activity that requires two hands.

Bilateral activities require your child to use different movements:

- **Symmetrical movements** – both hands use the same movement e.g. using a rolling pin
- **Reciprocal or alternating movements** – one hand is used first then the other e.g. pulling a rope hand-over-hand, making a tower with blocks
- **Supporting role** - one hand does more skilled work whilst the other hand supports e.g. cutting with scissors

Bilateral activities can be difficult for children for different reasons which can include:

- They are unsure which is their dominant hand
- They were late to establish their hand dominance and so have not refined their skill
- They have difficulties crossing midline (the middle of their body).

Children who have poor vestibular (movement) processing skills may also have some delay in developing their bilateral coordination.

If your child finds using their hands together difficult, you may notice that:

- They need prompting to use their 'helping hand' to hold the paper in place when writing
- They do not use their supporting or 'helping hand' to turn the paper when cutting with scissors
- They use one hand instead of two when fastening buttons or playing with toys.
- They get confused with directions or instructions
- They have problems with balance, coordination and poor two-handed coordination
- They find functional activities difficult e.g. using cutlery, dressing, tying shoelaces

## Crossing midline (the middle of the body)

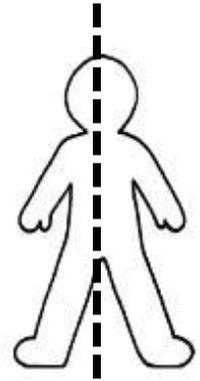
Crossing midline is the ability to reach across the middle of the body with the arms and legs crossing over to the opposite side e.g. drawing a line across a page without having to swap hands in the middle, or sitting cross-legged on the floor.



Being able to cross the midline (an imaginary line down the centre of the body) is an important skill for children to develop to help them with everyday tasks such as reading and writing, reaching towards their foot to put on a sock or shoe with both hands, or taking part in sports activities.

If your child has difficulty crossing their midline, they may have developed some strategies themselves including:

- Swapping their hands when they get to their middle of the page when drawing or writing
- Turning their body to reach towards the opposite side
- Picking up objects on the side that they are placed and passing them to the other rather than reach over



Poor midline crossing also makes it difficult to visually track a moving object from one side to the other or to fully track from left to right when reading.

### Helpful tips:

- **Increase body awareness** – Give your child lots of two-handed gross and fine motor activities using the different kinds of movements (*symmetrical, alternating, supporting role*) e.g. big movements playing ball games, clapping games, copy me, jigsaw puzzles, threading beads. The more your child uses their two hands in different activities, will increase their awareness of passing information from one side of the body to the other. This way will help them to learn what their body needs to do and the sensory input (feeling) they have when they do it.
- **Keep it simple** – Don't give your child an activity that is too challenging. This will reduce their motivation to try as they will likely not be successful. Age appropriate activities are not always necessary. If the activity is for younger children but your child is successful, this will increase their confidence and willingness to try something else. Challenges can always be increased and added to activities, but motivation to try after a struggle is not always as easy.
- **Body position** – Make sure your child is positioned symmetrically, with both shoulders and hips the same distance from the object in front of them. Place objects in midline (in front of the centre of child's body) for them to play with.
- **Visual Prompts** – Using visual prompts such as colours or stickers to encourage your child to move their body from one side to the other can be a good way to practice. For example, when writing or drawing having a starting place (green for 'go') and a stopping place (red for 'stop') can be a good clue that they can relate to as they are the same as traffic lights.
- **Get crafty** – Art and craft activities are a great way for your child to work on their bilateral coordination. Ripping up and scrunching paper, drawing pictures, making walls signs, copying patterns and tracing, using finger paints or chinks on chalkboards and outside. Using different

materials and textures for your child will give their body lots of sensory feedback and be enjoyable for them too.

## Finger dexterity, finger isolation and separation of the two sides of the hand

It is important for your child to be able to move their hands and fingers in lots of different ways and adapt when they need to complete the different activities that they take part in each day.

Being able to grasp and manipulate items in the hands and fingers with precision and accuracy is a skill that children learn through play. Repetition and practice of their movements will help to develop their finger dexterity so they become faster and more refined.



Children are frequently required to write/hold a pencil before their hands are actually ready to perform this task. Working on strength and dexterity from an early age, by giving your child lots of fine motor activities to play with, can help them to develop a good pencil grasp for when they need to use it.



As children develop they learn to move their fingers one at a time so are able to isolate their fingers as needed e.g. to point to something of interest using only their index finger. The ability to isolate their fingers is very important in the development of your child's fine motor skills as it helps to develop an efficient pencil grasp, typing skills, playing musical instruments, tying shoelaces and countless other everyday tasks.

It is important for your child to develop a 'skill side' (S) of their hand (thumb, index and middle finger) and a 'power side' (P) of the hand (ring and pinky finger). The two sides work together so that the hand can complete activities that need the hand to do different actions e.g. holding a pencil with the 'skill side' whilst the 'power side' tucks into the palm out of the way. This can be a difficult skill for your child to develop, and they may tend to use their whole hand to grasp items, or use all of their fingers to hold the pencil.



### Helpful tips:

- Encourage your child to use their thumb, index and middle fingers to do the manipulation. To do this, have your child place a pom-pom or cotton ball in the palm and tell them to hide it with their pinky and ring fingers. This will give the "power side" a job while the "skill side" manipulates.
- If your child uses their whole hand instead of holding the last fingers still while using the thumb, first and middle fingers gently hold your child's last fingers against the palm during the activity.

- Provide lots of opportunities for your child to isolate their fingers such as when reading books use their 'pointy fingers' to find pictures, or follow the words on the page; or counting using their fingers.

## Hand-eye coordination

Children develop hand-eye coordination at an early stage, but for some children it can be a difficult skill to master. Developing this skill is one of the most important parts of your child's learning. Hand-eye coordination requires your child to be able to use their hands and eyes together in a coordinated movement to reach and grasp tools and objects and release them in a given space. It also involves the ability to perform small, precise movements quickly and smoothly.

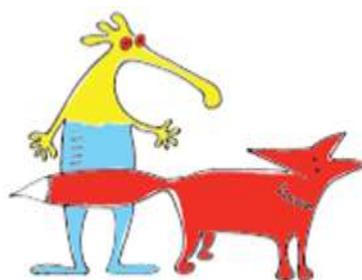


If your child struggles with their hand-eye coordination, it will be more challenging when they are required to draw or write.



### Helpful tips:

- Work within the limits of your child's frustration with hand-eye coordination activities. These activities need a lot of trial and error for your child to be successful, so it is important that you are patient and encouraging when they do struggle.
- It is helpful to work on gross motor skills (larger movements) first if these are also difficult.
- Hand-eye coordination is not a skill that can be taught, it will develop through practice. Give your child lots of opportunities to practice reaching out and grasping items, manipulating objects in their hands, and learning how different things fit together. Construction toys such as Meccano or LEGO are a great way to practice this skill.
- Start with big items first then reduce the size to increase your child's success.





## Activity Suggestions

Below are lots of activity suggestions to support your child to develop their fine motor skills:

- Pick up a small object with fingers (bead, coin, smarties, marble etc.) and "hide" it in your hand. Then pick up another and another.
- Move one item from your palm to your fingertips and place it down on the table (or put it in your mouth if it's food)
- Practice removing small objects from a purse, bag or container one at a time and hiding each within the palm. Then place them back, one at a time.
- Play board games such as Connect 4; Ker-Plunk; Pop-up pirates
- Place coins in a money box starting with several coins in the palm.
- String beads holding 2 or 3 beads within the palm
- Play pegboard games holding 2 or 3 pegs within the hand
- Twist open or closed lids on small bottles or toothpaste tube held within the palm of the hand
- Flip a coin from head to tail using the fingers of one hand
- Cut with scissors and practice adjusting the grip on the paper with the helping hand
- Practice fastenings on clothing e.g. buttons, zips and poppers.
- Turn a dice within the fingertips to see different sides. Ask your child to find a certain number.
- Place a sticker or face on a block, and ask your child to turn the block to find that side.
- Hold a small cup filled with water. Practice turning it with the fingertips without spilling. Water can be replaced with rice/pasta/cotton wool balls.
- Play with construction toys such as Duplo, LEGO, K'Nex
- Play with pop beads, older children may like to make jewellery items with them.
- Connect linking chains
- Place clothes pegs around a paper plate or piece of card/used cereal box. Encourage using only one hand to position/reposition the card or plate
- Any craft activities that require using bottles to squeeze: glue, glitter glue, fabric paint
- Lacing boards or sewing cards. Use pre-made boards and cards or make your own, using a hole punch on a picture card and shoelaces/string to thread.
- Hold a pencil in the fingertips, ready for writing, then "walk" the fingers to the eraser end of the pencil, then back to the tip. This will be easier with shorter thicker pencils to begin with.
- Turn a pencil between the thumb and fingertips: try turning it like a windmill in one direction, then the other; practice flipping a pencil from eraser end to tip end
- Sharpen pencils using a hand held pencil sharpener.
- Touch finger to thumb, squeezing the two together. Repeat with each finger in turn trying to move each finger separately. Practice with dominant hand first, then helping hand. Eyes open and then eyes closed.
- Play with finger puppets. Your child may like to make their own to play with.
- Use a torch to make shadows on the wall to make shadow hand puppets. See if you can guess what shapes each other is making.
- Use each finger to trace shapes, numbers, on different textures e.g. sand, shaving cream, paper

- Dampen fingertips or place tape around each fingertip (sticky side out) to pick up small light items with each finger e.g. hole puncher cut-outs, sequins, glitter, beans, small beads
- Play musical instruments such as castanets (finger symbols), recorder, toy flute, trumpet, toy piano.
- Play finger football. Teach your child how to "flick" the ball into the goal. Ball can be scrunched up paper/tin foil/cling film, ping pong ball, round bead, etc.
- Play games with keypads e.g. calculator, adding machine, telephone, toy cash register
- For younger children, sing songs that have lots of hand actions e.g. Itsy Bitsy Spider
- Teach finger signs such as "A-OK", V for Victory, thumbs up/thumbs down, numbers 1 - 10
- Paint using fingers or finger paint brushes
- Use a stapler or hand held hole punch to make holes for art projects
- Scrunch up paper into a ball using one hand then throw to target or into a bin. Use different sized paper to increase challenge. Use smaller balls in art projects to glue and stick.
- Have a tennis ball for your child to squeeze as hard as possible several times a day. If this is too tricky, start with a foam ball until strength increases.
- Use templates or other textured materials to scribble or colour over. This will give lots of sensory feedback in the hands and fingers!
- Stir or knead cake batter, clay, playdoh or other materials that have a thick consistency.
- Play with clay, putty, playdough or other resistant materials. Cut them up using scissors or a plastic knife; pull small pieces using the thumb and first finger (or thumb, first and second fingers) and roll them into little balls, using finger movements; make a 'bird's nest' by pinching a larger ball into a nest shape and filling it with 'eggs'.
- Role play with younger children – car wash, restaurant etc. Have a wet cloth or sponge for your child to wash with, and then wring out.
- Art activities requiring colouring/scribbling repeatedly for long periods of time.
- Use tongs or oversized tweezers to pick up small objects. Increase the challenge by moving them from one container to another.
- Cut out pictures using scissors (with supervision).
- Take the lid off a marker pen using one hand only. Hold the pen with the last 2 fingers while removing the cap and replacing it, using the thumb, first and middle fingers of the same hand.
- Use a water pistol or spray bottle to play water games outside; spray plants inside or in the garden; hit targets; or spray different colours of coloured water to make a design on paper outdoors.
- Loosen the lid of a plastic bottle whilst holding it with using one hand.
- Complete jigsaw puzzles of increasing difficulty with smaller pieces.
- Use pipe cleaners or 'Wikkisticks' (wax moulding sticks) to create pictures and shapes.
- Play with spinning tops or spin coins/lids on the table – see how many spins before it stops.
- Use an eye dropper to drop water on target stars or to drop coloured water to make a design.
- Hide items in dried beans, rice, sand etc. and ask your child to search for "buried treasure" by picking them up with tongs, or fingertip and thumb.
- Use stickers to make a picture by pulling them off and sticking them on paper. Create dot-to-dot pictures by using plain stickers.



If you require any further advice on the information provided in this booklet, please do not hesitate to contact the Children's Occupational Therapy team in your area.

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This leaflet only gives general information. You must always discuss the individual treatment of your child with the appropriate member of staff. Do not rely on this leaflet alone for information about your child's treatment.

This information can be made available in other languages and formats if requested.

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