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# SURGERY FOR HYPOSPADIAS

## Family information leaflet: Medical

February 2022

## Hypospadias surgery

This leaflet explains about hypospadias surgery, and what to expect when your child comes to the Department of Paediatric Urology at Bristol Children's Hospital for treatment.

### What is hypospadias?

Hypospadias is a common condition, affecting ONE in 200 boys. In hypospadias, the urethral (urinary tract) opening is not at the tip of the penis. The opening may come out anywhere along the underside of the shaft of the penis, and in more severe cases, may even be as far back as the base of the scrotum. The foreskin is usually incomplete on the underneath ("hooded") and there may also be an associated downward bend in the penis (known as "chordee"). If your child is noted to have hypospadias, it is important to avoid a circumcision, as the foreskin may be needed during surgical correction of the hypospadias

### Why does it occur?

The penis begins to develop in the womb at around 8 weeks. During its development, two urethral folds on the sides come together in the midline to form the urethra. Hypospadias occurs if these folds don't meet correctly. The cause of hypospadias is not completely understood. The following factors may be important:

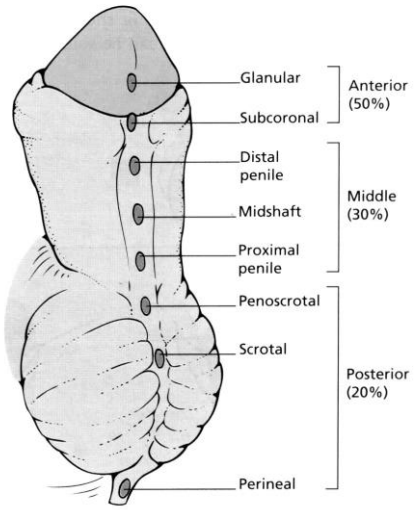
GENETIC: Research has shown that there is a genetic predisposition to hypospadias, as hypospadias can run in families. In addition, if you already have one child with hypospadias, then the chance of having another boy with hypospadias increases to around ONE in 20.

ENDOCRINE: Hypospadias can be seen in some rare conditions where androgens (sex hormones affecting development of the reproductive organs) are either produced in low levels, or don't work correctly.

ENVIRONMENTAL: Oestrogens may have an effect on penile development. Oestrogens are contained in various environmental substances such as pesticides on fruit and vegetables, and this may explain why hypospadias is more common in mothers with an exclusively vegetarian diet.

### What types of hypospadias are there?

There are a number of different ways of assessing the severity of hypospadias and your paediatric urologist will explain this to you in detail when you meet in clinic. Hypospadias can be described according to the position of the urethral opening e.g. glanular / subcoronal / penile / penoscrotal or anterior / middle / posterior [see diagram]. The severity of the hypospadias will determine whether it will be possible to perform a single-stage operation or if a multi-stage operation will be needed.




### Why is surgery necessary?

If the hypospadias is mild, then it is unlikely to cause a problem in the future, either with urination or sex, and surgery is NOT essential. You will need to decide if you are sufficiently concerned about the cosmetic appearances to want to go ahead with surgery, remembering that surgery can have complications. If the hypospadias is more severe, boys may find it difficult to pass urine standing up. In addition, if there is a significant bend, then this may make it difficult for them to have sex in the future. In those situations, your paediatric urologist will recommend surgery.

## Hypospadias surgery

## When will my son be seen?

An appointment will usually made for an outpatient review when your son is around 6 months of age as it can be difficult to determine the severity of the hypospadias in the first few months. The paediatric urologists at Bristol Children's run a number of regional clinics so you may be offered an appointment at your local hospital.

## What does the surgery involve?

Prior to the pandemic, surgery used to take place at 10-18 months of age, with subsequent operations being performed at 6-month intervals. Following the pandemic, with increased waiting lists, surgery can take place at any age during childhood.

The paediatric urologists at Bristol Children's Hospital will discuss several options with you depending on the severity of the hypospadias:

1) an isolated foreskin reconstruction ['zipping up' of the foreskin]
2) a single-stage 'Snodgrass' repair
3) a multi-stage 'STAG' or 'STAC' repair – this can involve 2 or 3 separate stages

Your child's foreskin may be reconstructed during the surgery, or it may be removed [circumcision], depending on the procedure, the severity of the hypospadias and your own preferences. If your child's penis is quite small, the urologist may recommend use of TESTOSTERONE cream for 3 weeks before the surgery as this can increase the size and make the surgery more straightforward.

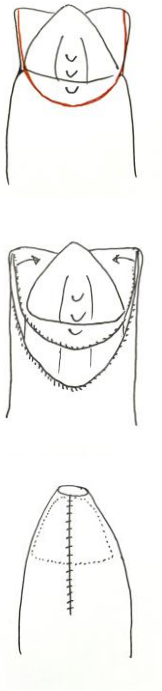
Surgery can take between 45mins [for a foreskin reconstruction] to 3-4h [for a complex multi-stage repair]. However long the operation takes, it will usually be done as a day-case [no need for an overnight stay in hospital]. With single or multi-stage repairs, your child will return from theatre with a CATHETER and a special DRESSING covering the repair. If your child is in nappies, the catheter will be left to drip urine into his nappy. If your child is toilet-trained, the catheter will be connected to a drainage bag. An isolated foreskin reconstruction does not require a catheter.

The dressing and catheter will be kept in place for ONE week after the operation. Depending on your child's age, arrangements may be made to remove the dressing and catheter using midazolam SEDATION. This medicine keeps your child very calm while the dressing and catheter are removed, and they generally don't remember it afterwards.

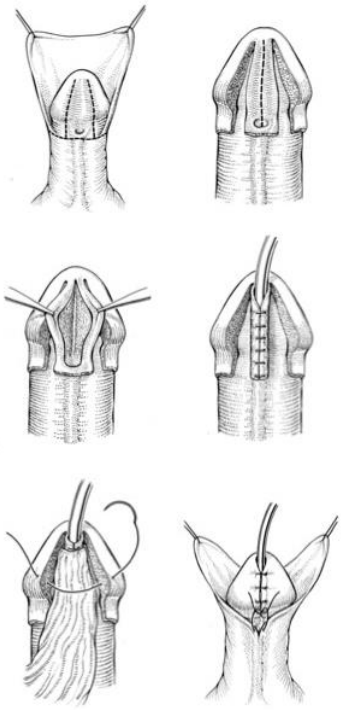
You will then be seen by your surgeon in the outpatient clinic around THREE months after the operation. If other stages are required, then dates for these will be planned.

Hypospadias surgery

Foreskin reconstruction [‘zipping up’]



Single-stage repair [‘Snodgrass’]

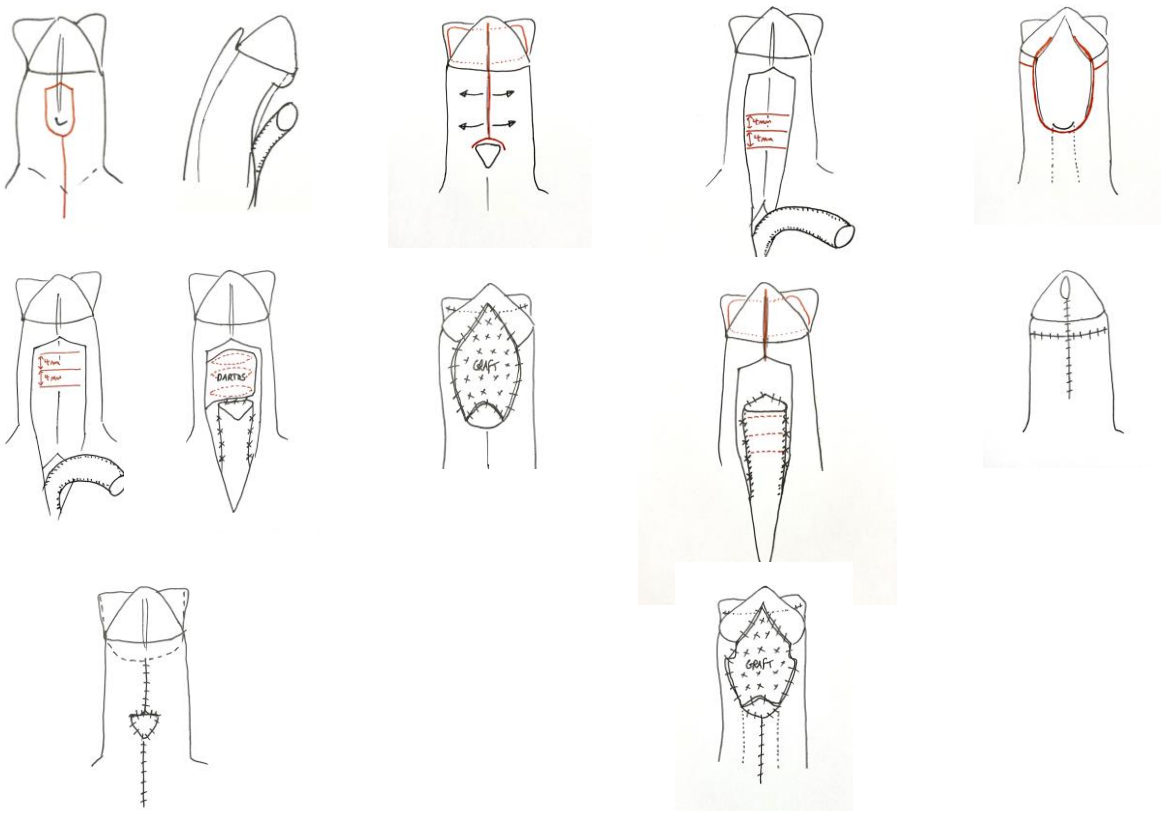


The single-stage **Snodgrass repair** is most commonly used with less severe forms of hypospadias without much bend, and it is often possible to reconstruct the foreskin during this type of repair.

## Hypospadias surgery

STAC [stage 1] STAC [stage 2] STAG [stage 1] STAC [stage 3]

STAG [stage 2]




A multi-stage 'STAC' or 'STAG' repair is generally used for more severe hypospadias, particularly if there is a significant amount of bend.

The **STAC repair** [STraighten And Close] requires 3 separate operations at least at 6 month intervals. The 1st stage involves mobilising the urethra, correcting the bend with cuts on the erectile tissue ['corporotomies'], and then closing the skin. A skin graft, usually taken from the inner foreskin or occasionally from the mouth, is then placed during the 2nd stage. In the 3rd stage, the skin graft is made into a tube to create a new urethra. A circumcision will be performed either during the 2nd or 3rd stages.

The **STAG repair** [STraighten And Graft] requires 2 separate operations, again at least at 6 month intervals. It is similar to the STAC repair, but can be used when the area of bend is lower down on the penis allowing the 'corporotomies' to be covered by the urethra. As a result, the skin graft can be placed at the same time. The 2nd stage of a STAG repair is identical to the 3rd stage of a STAC repair. A circumcision will be performed during either stage.

### What happens before the operation?

On the day of admission to hospital, the surgeon will visit you to explain about the operation in more detail, discuss any worries and ask you to sign a consent form giving your permission for the operation. Another doctor will also visit you to explain about the anaesthetic and options for pain relief after the operation. A member of the nursing team will talk to you about the after care, and in particular the plans for nappies.

If your child has any medical problems, particularly allergies and constipation, please tell the doctors about these. Please also bring in any medicines your child is currently taking.

## Are there any risks?

General risks: All treatments carry an element of risk, but this must be balanced against the quality of life without treatment. All surgery carries a risk of bleeding during or after the operation. Every anaesthetic carries a risk of complications, but this is very small. Your child's anaesthetist is a very experienced doctor who is trained to deal with any complications. After an anaesthetic, your child may feel sick and vomit. He may have a headache, sore throat or feel dizzy. These side effects are usually short-lived and not severe.

Specific risks: The following complications can occur in between 5% and 20% of boys, depending on the severity of the hypospadias, with a leak or fistula being the most common problem.

BLEEDING: a small amount of bleeding around the dressing is common. More severe bleeding is very unusual, but if this were to occur then your child may need to go back to theatre [<<1% of boys].

LEAK or FISTULA: if the stitching doesn't heal perfectly, then your child may develop a leak of urine from the newly formed urethra. When he passes urine, most of the urine will appear from the new urethral opening, but a small amount may appear on the underneath at a single point along the repair. If the leak didn't close spontaneously, then a 2nd operation would be required to correct it at least 6 months after the initial repair.

NARROWING or STRICTURE: the new urethra can narrow anywhere along its length, but this occurs most commonly at the opening on the head. If this happens, then a 2nd operation may be required to stretch it. If the narrowing is severe, then it may be necessary to repeat the stretch as your son grows.

REPAIR COMES 'UNZIPPED': if the repair becomes infected, then the stitching may not heal, and the repair will come undone. This is a very rare complication [<1%], and a repeat operation would be required at least 6 months after the 1st repair.

RECURRENT BEND or CHORDEE: if your child's penis is significantly bent, then the surgeon will try to straighten it as much as possible at the time of surgery. However, as the penis will grow a lot through puberty, then there is a small risk of it bending again, and if this was a concern for the child, then further surgery may be necessary.

## What happens afterwards?

Once your son's operation is completed, he will return to the ward when awake. He will be able to drink straight away and eat shortly after although children can often feel a bit groggy, sick or can be upset after a general anaesthetic. He will be monitored for a short time after by nursing staff on the ward, usually around 2-3h. Most procedures are done as a day case. When the nursing staff are happy that your son has recovered, and you are happy with the after care, you will be allowed home. If you are to stay overnight, one parent will be allowed to stay.

Before discharge, arrangements will also be made for you to return after ONE WEEK for the dressing and catheter to be removed. Finally, you will be seen by your surgeon in the outpatient clinic around THREE MONTHS after the surgery.

# SURGERY FOR HYPOSPADIAS

## Family information leaflet: Nursing / After-care

## Care for your son with a dressing and a catheter draining into a nappy

If your son is in nappies, we use a 'double nappy' technique to ensure that the catheter and dressing are correctly looked after. You will need:

1x nappy of the normal size
1x nappy 1 or 2 sizes bigger
A pair of sharp scissors
Suitable tape e.g. elastoplast (provided by the ward)

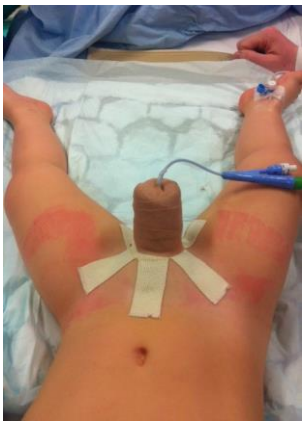
In the smaller nappy (your son's normal size) cut out a circular hole in the centre of the front half. This will usually need to be around 5cm in diameter. Then, using small lengths of the tape, tape up around the cut out hole. You must ensure that it is a complete circle of tape from inside to outside to prevent any of the gel beads from within the nappy getting into the stent.

Next, lay your son onto the nappy with the hole at the front. Carefully position the catheter and dressing through the hole and secure the nappy at the sides as normal.

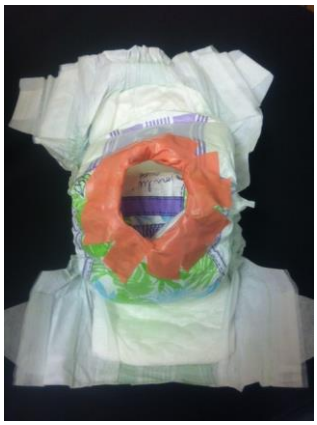
Now lay your son on the larger sized nappy and secure this at the sides as normal. Here you must ensure that the catheter is pointing downwards into the nappy and is not bent or kinked, as this could block the catheter and prevent it from draining correctly.

The top/outer nappy should be changed regularly or when wet as you normally would. The bottom/inner nappy need only be changed daily or with every bowel motion.

Dressing

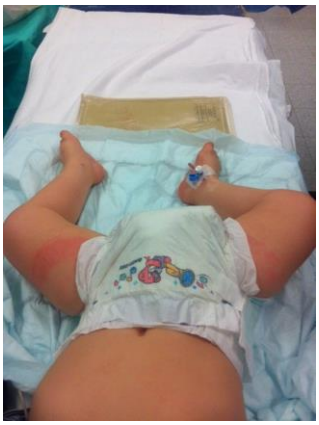


Inner nappy



Inner nappy over dressing

Outer nappy on top



## Care for your son with a dressing and a catheter draining into a bag

If your son is out of nappies, a catheter bag will be used.

There are 2 types of bags: a leg bag and a night bag. You will be shown how to empty and change both types of bags on the ward and then be sent home with a supply. If necessary, you will also receive a delivery of extra night bags at home. To prevent infection, it is important to wash your hands before and after any contact with the catheter and bags.

### Leg Bag:

This is a smaller bag that can be strapped around your son's leg using velcro straps, which usually sit just above and just below the knee. Urine will drain constantly into the bag, which will need regular emptying.

*To empty the catheter:*

- wash your hands
- stand or sit your child near the toilet
- open the valve at the bottom of the bag; empty the bag into the toilet or a suitable container
- this can be done by undoing the lower strap of the bag, placing over the toilet
- close the valve and wash hands
- you will need to empty the bag at least four times a day.

## Night Bag:

Overnight, a night bag should be used as it has a larger capacity. This bag should be attached directly to the bottom of the leg bag. Once the night bag had been attached, open the tap of the leg bag to allow free drainage of the urine from the leg bag into the night bag. You must use a clean night bag every night to help prevent infection

## Medication and pain relief

We will prescribe the following medications:

1. TRIMETHOPRIM (an antibiotic) - given TWICE daily to help prevent infection
2. OXYBUTYNIN (to treat bladder spasm) – given as needed up to TWICE daily. Some boys experience intermittent pain as a result of 'bladder spasm', which occurs when the empty bladder squeezes on the catheter.

You should make sure you also have a supply of PARACETAMOL and IBUPROFEN at home to give regularly for the 1st few days.

## When you get home

Ideally the dressing should remain clean and relatively dry, although this can be difficult. If it gets particularly dirty, then it can be washed with a damp sponge, although the dressing shouldn't be soaked.

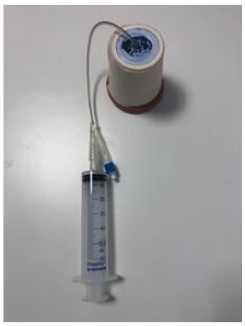
It is important to regularly check that your son's catheter is draining, either when you change his nappy or by checking the leg bag.

Ideally your son should have TWO weeks off from school or nursery – one week while the dressing is in place, and one week after it has been removed. During this time, try to ensure he avoids boisterous play, climbing or cycling/riding on toys/trikes. For the next FOUR weeks [to a total of six weeks after surgery], the repair will still be healing, so try to limit boisterous play. Swimming should be avoided for the whole SIX weeks.

## Hypospadias surgery

### Procedures

It is not uncommon for the catheter to become blocked. If so this will need to be flushed. You will be shown how to do this in person with the nurse before you leave, but we have included instructions here on how to unblock the catheter.



1. Wash your hands
2. Empty the plastic saline ampule into the plastic pot provided
3. Using the 50ml syringe provided draw up 20-30ml of saline
4. Using the wipe provided, clean the end of the catheter, allow to dry and then insert the syringe.
5. Push the saline in gently
6. If it flushes easily, remove the syringe and the saline and then urine should flow out.
7. If there is some resistance but the saline goes in remove the syringe, refill it, and push more saline into the catheter/stent. The urine should then start to flow again.

### Assessment of procedures

| Care required | Assessment criteria | Initial theory/ training | Practical training - staff demo | Parent/ guardian demo | Parent/ guardian competent |
|---|---|---|---|---|---|
| **Identify:** infection control considerations | • Parent/guardian understands the importance of maintaining good hand hygiene<br>• Parent/guardian understands the importance of maintaining a clean area around the catheter/stent<br>• Parent/guardian can explain the hand washing technique. | | | | |
| **Skill:** how to flush catheter | • wash hands<br>• empty saline into gallipot<br>• draw up saline into syringe<br>• attach blunt needle (if required) to syringe<br>• clean the end of the stent/catheter with wipe provided<br>• gently push saline into stent/catheter<br>• if flushing easily remove syringe and allow urine and saline to flow out<br>• if there is some resistance but the saline goes in, remove the syringe, and then attempt to pass more saline into the catheter/stent<br>• remove and allow urine/saline to flow out again | | | | |
| **Prevent:** identify and manage potential complications when the catheter/stent is blocked | • Parent/guardian understands to attempt flushing a blocked catheter/stent only once at home<br>• Parent/guardian knows who to contact with any concerns or problems<br>• Parent/guardian has read the escalation plan and had an opportunity to ask questions | | | | |

## Hypospadias surgery

### Removal of dressing

Arrangements will be made for the dressing to be removed after one week. This will usually take place on Puzzlewood, the clinical investigations unit.

Give your son a bath the night before removal, allowing him to soak in the bath to loosen the dressing slightly

If you have been told your son is going to have midazolam SEDATION, he should not be given food/milk for at least 2 hours before the appointment – usually this means nothing after 7am – but you can give him paracetamol one hour before his appointment on Puzzlewood.

On Puzzlewood, your son may be given the midazolam SEDATION. The catheter and dressing will then be removed when the sedation has worked, and the repair will be assessed for healing. PLEASE NOTE: the repair can look very bruised - DO NOT BE ALARMED by the appearances at this stage.

After removal of the dressing, you may be asked to wait until your son passes urine – this can take a few hours, so be prepared for a bit of a wait. Drinks will be provided but you may want to bring your own if your son has a particular favourite.

When changing nappies after dressing removal do not use fragranced wipes. Clean with water and do not rub the operation site.

Finally, you will be seen by your surgeon in the outpatient clinic around THREE MONTHS after the surgery.

### Trouble shooting:

| Problem | Causes | Action |
|---|---|---|
| The dressing has become soiled | Stool has seeped through double nappy | Dressing can be washed with a damp sponge, although the dressing should not be soaked |
| The catheter stops draining | Catheter is blocked | Ensure the catheter is not kinked.<br>Give your son an additional drink.<br>Flush the catheter as you were taught to before discharge.<br>If this doesn't help, phone for advice |
| Your son is in intermittent pain | Bladder spasm | Give the OXYBUTYNIN as prescribed. If this doesn't help, call the ward for advice. |
| Bright red blood in urine or on dressing | Post-operative bleeding | A small amount of blood is normal. If the bleeding is continuous, contact the ward or the on call surgical registrar for advice. |
| The urine appears smelly or cloudy | Possible urine infection | Encourage your son to drink plenty of fluids. If it doesn't improve, he may need additional antibiotics. Please contact your GP or phone for advice |
| Redness spreading out on the skin near the base of the dressing or your son has a temperature | Possible wound infection | He may need additional antibiotics. Please contact your GP or phone for advice |

Hypospadias surgery

Contact details

| Name | Reason | Role | Location | Telephone number |
|---|---|---|---|---|
| Nursing staff<br>[Mon – Fri 8am to 6pm] | Advice | Nurse | Meadow ward | 0117 342 7031 |
| Nursing staff<br>[6pm – 8am and weekends] | Advice | Nurse | Penguin ward | 0117 342 8331 |
| On call surgical registrar | Advice | Doctor | Bristol Royal Hospital for Children | 0117 927 6998 |
| Nursing staff | Dressing removal | Nurse | Puzzlewood ward | 0117 342 7058 |
| Consultant's secretary | Follow up queries | Secretary | Bristol Royal Hospital for Children | 0117 342 8641/2 |

| STAFF/PARENT checklist: | Tick: |
|---|---|
| Shown how to use double nappies | ◯ |
| Completed teaching pack for flushing | ◯ |
| Shown how to change catheter day bag | ◯ |
| Shown how to connect night bag | ◯ |
| Shown how to empty the catheter bag | ◯ |
| Received all equipment | ◯ |
| Pain relief available at home? | ◯ |
| Take home medication given and explained | ◯ |
| Follow up appointment booked with Puzzlewood | ◯ |
| Discharge letter given | ◯ |
| Ward telephone numbers given | ◯ |

Your son will need to attend Puzzlewood Ward on……..at……

## Hypospadias surgery

## Complete sign off for post-operative care of hypospadias

## Parent/guardian

Please sign to indicate that you have worked through this 'Hypospadias teaching pack' thoroughly, have had as much opportunity to practice as you would like and feel both confident and competent in the skills that you have been taught and able to carry them out independently at home for your child.

Parent signature……

Date……..

Printed name……

## Ward nurse

Please sign to indicate that the parent/guardian above has been taught the skills outlined in the teaching pack 'Hypospadias competency' and that they have been assessed and deemed competent by a registered nurse at each step of the process to provide an overall competency against the skill required for their child to be discharged home.

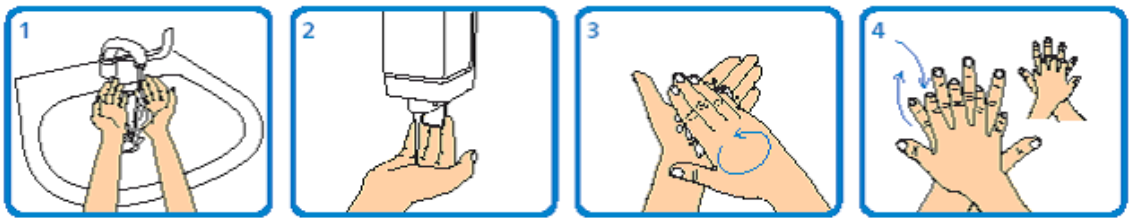
Ward nurse signature……..

Date……..

Printed name……..

(Stamp)

# Hand-washing technique with soap and water

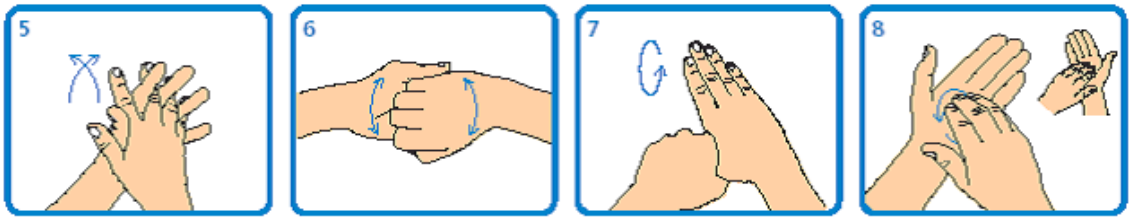


1 Wet hands with water

2 Apply enough soap to cover all hand surfaces

3 Rub hands palm to palm

4 Rub back of each hand with palm of other hand with fingers interlaced

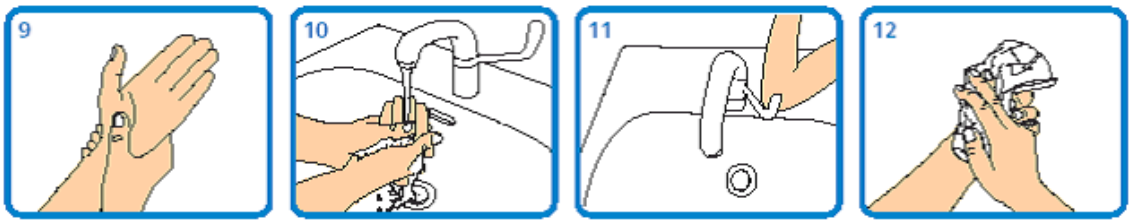


5 Rub palm to palm with fingers interlaced

6 Rub with back of fingers to opposing palms with fingers interlocked

7 Rub each thumb clasped in opposite hand using a rotational movement

8 Rub tips of fingers in opposite palm in a circular motion

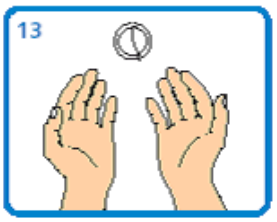


9 Rub each wrist with opposite hand

10 Rinse hands with water

11 Use elbow to turn off tap

12 Dry thoroughly with a single-use towel



13 Hand washing should take 15–30 seconds

cleanyourhands campaign

NHS National Patient Safety Agency



Adapted from World Health Organization *Guidelines on Hand Hygiene in Health Care*