Urine specimens are used to aid diagnosis of a urinary tract infection (UTI). NICE guidelines (2013) recommend that infants and children with an unexplained fever of 38°C, as well as those whose initial site of infection is detected, yet they remain unwell, should have a urine sample tested for infection.

There are various ways of obtaining a urine specimen. NICE (2007) recommends the use of a clean-catch urine (CCU). The timing of the CCU is important. Urine passed first thing in the morning is the best choice for urinalysis and microscopy as it is more concentrated. Urine passed at other times of day is more likely to be dilute and therefore less useful for testing. For some patients, timed collection of a urine sample may be important to allow quantitative measurement of metabolites—for example, measurement of creatinine in chronic renal failure. A mid-stream CCU is strongly recommended for microbiological culture and testing for antibiotic sensitivity (NICE, 2013).

If a CCU is not possible, the alternative options are:

- Catheterisation of the child or infant, which then makes it possible to obtain a urine sample from the catheter tubing using a syringe.
- Suprapubic aspiration (SPA), where a needle is passed directly through to the bladder in order to obtain a sample. Catheterisation is preferable to suprapubic aspiration, as it is less painful; in addition, ultrasound guidance may be needed for SPA (NICE, 2013). SPA tends to be used for non-ambulatory patients who cannot be catheterised, and where there are concerns about obtaining a sterile specimen.
- Paediatric urine pads: these are absorbent pads that can be placed in the nappy for young children who are not toilet-trained.
- Urine pads or other non-invasive methods.
- Paediatric urine bags, which stick to the skin around the genitals, allowing collection of urine. The results from these bags are difficult to interpret and can return up to 85 per cent false-positive results (Finnell et al., 2011).

When caring for an infant with a high risk of serious illness, although it is highly preferable to obtain a urine sample, do not delay treatment if a sample cannot be obtained.

**Equipment**

- Towel
- Warm water and appropriate cleansing agent
- Gauze
- Sterile receiver
- Sterile containers
- Male/female urine collection bag
- Urine pad
- Sterile
- Urine Container with Boric Acid Preservative

**Encourage fluids**

Encouraging fluids 30 minutes before collection may aid obtaining a specimen of urine.

**Obtaining a CCU in a child without bladder control**

Ensure privacy. Explain the procedure to the child and/or parent/carer. Decontaminate your hands and wear apron and gloves. Urine needs to be handled in accordance with local infection control guidelines. Any spillages need to be treated with universal precautions outlined in local policies, to ensure the safety of staff and patients.
Collecting a specimen of urine

Remove the nappy

Undress the child sufficiently in order to remove the nappy.

Use warm water to wash the genitalia

Place a towel under the child and bring a bowl with warm water to the bed. Use soap or another appropriate cleanser for washing the genitalia.

Clean the genitalia: girls

Clean the genitalia with gauze. In girls, part the labia and clean from front to back, using a fresh piece of gauze for each wipe. Pat dry with a clean towel.

Clean the genitalia: boys

With boys, use gauze to clean the penis. Hockenberry & Wilson (2014) suggest that the tip of the penis should be washed and the foreskin only pushed back as far as it will go and then repositioned after cleaning; follow local policy. Cleaning the perianal/genital area reduces the risk of a positive result on urinalysis. Pat dry with a clean towel.

Collecting the urine sample

Dispose of your gloves, decontaminate your hands and put on clean gloves. Sit the child over a sterile urine receiver until the child passes urine, or alternatively, attempt to catch urine directly into the pot as the infant urinates.

Obtaining a CCU in a child who has bladder control

Ensure privacy and explain the procedure to the child and parent/carer. Show the child how to wash his/her hands.

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain his/her consent, in line with the policies of your employer or educational institution.
Collecting a specimen of urine Page 3

Instruct the child to clean his/her own genitalia

Ask the child to clean his/her own genitalia. A boy should retract his foreskin (if he can) and clean the penis with gauze. A girl should use gauze to clean the urethral meatus and perineum, parting the labia and wiping from front to back; she should use a fresh piece of gauze for each wipe. Younger children may need assistance from their parent/carer.

Passing a sample into a pot in a potty

Younger children who are used to using a potty may be able to provide a sample if you place a pot in a potty and encourage them to sit on it.

Collecting a mid-stream urine sample

Older children who are used to using the toilet should be able to provide a mid-stream urine sample if you explain to them what they need to do.

MSU (a)

The child needs to pass urine into the toilet, allowing approximately the first 50 mL of urine to pass into the toilet, to flush contaminants from the urethra before collecting the urine sample. Girls should raise the toilet seat and stand straddling the toilet pan.

(b)

While the child continues to pass urine, he or she should pass the sterile container through the flow of urine and collect approximately 20 mL, before removing the container from the urine stream.

(c)

The child should continue to void into the toilet until the bladder is empty. He or she should then give the urine sample to the healthcare practitioner, who will transfer it into an appropriate sterile container. The child should then wash his or her hands (Loveday et al., 2014). Having dealt with the sample, the healthcare practitioner should remove gloves and decontaminate hands.

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain his/her consent, in line with the policies of your employer or educational institution.
**Collecting a specimen of urine**

**Alternatives to CCU: (a) Urine pads**

Ensure privacy and explain the procedure to the child and the parent/carer. Wash your hands and wear gloves and an apron.

**Check the pad every 10 minutes**

Fasten the nappy onto the child and check regularly (every 10 minutes) to see if the pad is wet. While the pad remains dry, change it every 30 mins to reduce the risk of collecting a contaminated sample. If the child soils the nappy, clean and dry the genitalia as described before, then repeat the procedure. Adhere to universal precautions each time you change the pad.

**Apply a clean nappy**

Apply a clean nappy and ensure that the child is safe with another colleague or with the parent/carer while you obtain the urine sample.

**Clean the genitalia**

Clean and dry the child’s genitals as described previously. Dispose of your gloves, decontaminate your hands and put on clean gloves. Position a urine pad inside a clean nappy.

**Remove the nappy once the child has micturated**

When you find that the pad is wet, put on gloves and apron, remove the nappy and pad and put it to one side.

**Option 1: Obtain the urine sample using a syringe**

Take the wet nappy/pad to the sluice room. Using a 5-mL syringe without a needle, draw up 3 to 5 mL of urine and expel it into an appropriate sterile container.

---

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain his/her consent, in line with the policies of your employer or educational institution.
Option 2: Obtain the urine sample by squeezing the pad

Alternatively, wash your hands, put on gloves and an apron and squeeze the pad soaked in urine directly into the sterile urine pot. Ensure that the container is correctly labelled with the full and correct patient details.

Wash the genitalia

Wash the child's genitals as previously described.

Applying the bag: boys

For boys, place the bag over the penis and scrotum. Once secure, put a clean nappy over it and observe the child regularly to detect when he has passed urine.

Applying the bag: girls

For girls, place the bag over the vulva, starting from the perineum. Once secure, put a clean nappy over it and observe the child regularly to detect when she has passed urine.

Alternatives to CCU: (b) Paediatric urine bags

Ensure privacy and explain the procedure to the parent/carer. Wash your hands and put on gloves and an apron.

Select the correct bag

Select a urine bag of the correct size and type (male/female). Check that the expiry date has not passed and that the packaging is intact. Open the packaging, remove the bag and peel off the adhesive backing.

Sterility is guaranteed if package is unopened and undamaged.

Verifier l'intégrité du protecteur individuel de sterilite avant usage.

Sterilitat wird bei ungeöffneter und unbeschadigter Packung garantiert.

Esterilidad garantizada si el envase ne esta abierto o dañado.
Collection of Samples

Collecting a specimen of urine Page 6

Remove the bag after micturation

Once the child has urinated, undo the nappy and remove the bag. Put the bag to one side without risk of spillage.

Obtain the urine sample and label the container

Take urine bag into the sluice room and pour the urine carefully into a sterile urine pot. If possible, the sample should be transferred within an hour. Ensure that the container is correctly labelled with the full and correct patient details.

Label the container and fill out the appropriate form

Ensure that the container is sealed in a biohazard bag and is accompanied by the laboratory request form, signed by the appropriate health professional. If possible, the sample should be transferred within an hour.

Clean the genitalia and apply a nappy

Clean the child's genitilia and apply a clean nappy. Ensure that the child is safe with another colleague or with the parent/carer while you deal with the urine sample.

Urinalysis

If performing urinalysis, tip a small amount of the urine into another sterile pot and test from this pot, to ensure that the testing strip does not contaminate the sample being sent for testing.

Remove gloves and apron and wash hands

Remove your gloves and apron and wash your hands. Ensure that the child is comfortable and tell the parent/carer about any findings from the urinalysis (if carried out). Explain when the results will be available and discuss any treatment proposed in the meantime.

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain his/her consent, in line with the policies of your employer or educational institution.