

## Urine Collection to Diagnose Urinary Tract Infection (UTI)

### Introduction

The urinary system includes two kidneys (that filter urine), two ureters (that move urine from the kidneys to the bladder), the bladder (that holds urine), and the urethra (the opening that carries urine out of the bladder). When bacteria (germs) enter the bladder or kidneys, infection would be developed. These are called urinary tract infections. (UTI) There may be a risk of damage to the kidneys if treatment is not started timely.

### How to diagnose UTI?

A urine sample is needed to diagnose UTI. In young children who are not toilet trained, a urine dipstick test (a rapid test) is usually done on a urine sample collected in a bag (bag urine). If the dipstick results suggest that the child has a UTI, urine can be obtained properly by one of the following methods for urine culture to confirm the diagnosis. It takes up to days for germs to grow so the culture results are not instantly available. Your doctor would decide to start antibiotics before the culture results are available.

The use of bag urine for urine culture is not recommended as the results are often misleading.

In older children who can use the toilet, the urine sample could be collected by having the child urinate into a sterile cup.

### Proper methods to collect urine for culture

#### 1. **Bladder catheterization**

This procedure is done under aseptic technique. A small soft sterile plastic tube is inserted into the bladder through the urethra. The urine is drained out into a sterile container. This is a simple and quick method having a high successful rate unless the child has just emptied his/her bladder. However, there may be a chance of contamination especially in boys whose prepuce cannot be retracted.

#### 2. **Clean catch urine collection**

If your child voids after the proper cleaning the genitalia, a clean-catch urine sample could be collected. It may take a long time if your child is not voiding spontaneously.

### 3. **Supra-pubic aspiration**

This is also done under aseptic technique and is usually done in young babies. A very fine needle is inserted at the lower abdomen into the bladder to collect the urine. This is the most definite method to diagnose or exclude UTI. The limitation is that it is only successful when there is a full bladder (Reported success rates varying from 45-65%). Your doctor may use ultrasound to help locate the distended bladder to increase the success rate.

## Any risks and complications?

### 1. **Bladder catheterization**

Your child will feel the discomfort or pain during the procedure. Rarely there may be minor trauma causing transient blood stained urine, or transient pain on voiding. There may also be a chance of introducing an infection to the bladder but it is extremely rare.

### 2. **Clean catch technique**

There is no complication, but there will be a delay of urine collection if this method is insisted on.

### 3. **Supra-pubic aspiration**

Your child will feel the pain of a needle puncture. Rarely there may be transient blood stained urine after the procedure, and this will settle in 1-2 days. There is a risk of injury to the abdominal walls or bowels but it is extremely rare.

## Preparing your child for the procedure

- Your doctor will discuss with you and let you know which method of collecting urine is best for your child.
- It is important for your child to have urine in their bladder before carrying out the procedure. Please give a good drink to your child shortly before the procedure, and examine the nappy to ensure that your child has not voided just before the procedure.
- Supra-pubic aspiration and bladder catheterization are relatively safe procedures. Your cooperation would very much facilitate such procedures.

## Remarks

The list of complications is not exhaustive and other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For any queries or further information, please consult our medical staff.