

## PREVENTION

Target fluid intake about 2 litres a day for those who are at risk of stone formation. A good way to gauge whether you are drinking enough is when your urine is colourless.



Depending on your condition, your doctor may request for you to reduce intake of particular types of food:



Reduce salt intake



Reduce High-Purine\*  
Foods

e.g. Red meat, organ  
meats, shellfish



Reduce High-  
Oxalate^ Foods

e.g. Spinach, peanuts,  
chocolate, black tea,  
sweet potatoes



Reduce Medium-  
Oxalate^ Foods

e.g. Celery, green  
pepper, raspberries,  
strawberries, grapes,  
liver

\* A purine-rich diet can raise uric acid levels in the body, leading to conditions such as urinary stones.

^ Oxalate is naturally found in some foods and exits the body through urine. Too much oxalate can cause urinary stones.

### Clinics 2A and 2B

TTSH Medical Centre, Level 2

#### Contact:

6357 7000 (Central Hotline),

6889 4242 (Non-Subsidised Hotline)

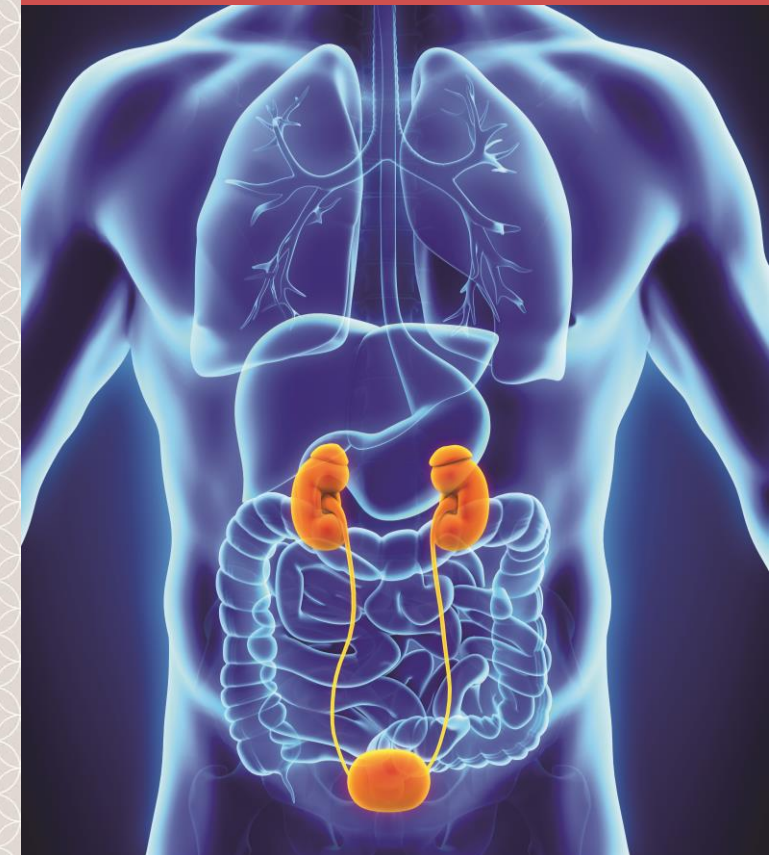


Scan the QR Code with your smart phone  
to access the information online or visit  
<http://bit.ly/TTSHDiseases-Conditions>.

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## DEPARTMENT OF UROLOGY

# URINARY STONES



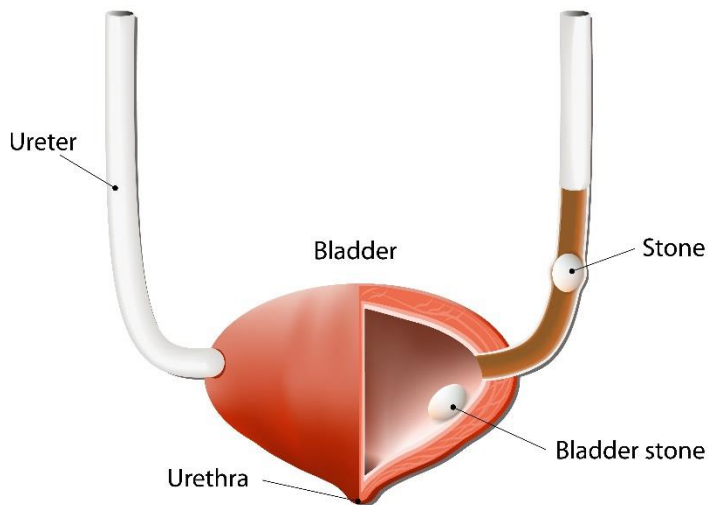
## WHAT ARE URINARY STONES?

The function of the kidneys is to filter waste chemical compounds from the body into the urine.

Under certain conditions, chemicals (such as calcium, oxalate, phosphate, uric acid and others) in the urine may crystallise and combine to form urinary stones.

Urinary stones may block urine flow and affect the function of the kidney.

## BLADDER STONE



### CAUSES

The risk of urinary stone disease is increased when there is:

#### Diet

- Low intake of fluids
- High intake of foods rich in salt (sodium), purine and oxalate

#### Hereditary

- Family history of kidney stones

#### Medical

Individuals with certain medical conditions are at increased risk of developing kidney stones.

- Hypercalcemia
- Gout
- Renal tubular acidosis
- Chronic diarrhoea
- Bowel disorders

#### Anatomical

- Structural abnormalities in the urinary system leading to obstruction of urine

### SYMPTOMS

Not all individuals with urinary stones will experience any symptoms. Common symptoms of a kidney stone include:

- Cramping pain which radiates from around the kidney to the lower abdomen
- Painful urinary urgency
- Blood in the urine (haematuria)
- Recurrent urinary tract infections

### DIAGNOSIS

Imaging of the urinary tract could be done via:

- X-ray
- Ultrasound
- Intravenous Urogram (IVU)
- Computerised Tomography (CT) scan

Additional urine and blood tests may also be done.

### TREATMENT

Treatment may vary depending on the stone location, size, number and patient factors such as age and fitness. Some of the treatment options include:

- **Observation and Medical Therapy** (Dissolution/Medical Expulsion Therapy)
- **Extracorporeal Shock Wave Lithotripsy:** Involves focused shock waves that pass through the body to hit the stones, breaking the stones into smaller pieces.
- **Ureteroscopic Lithotripsy and Retrograde Intrarenal Surgery:** Both involve minimally invasive surgery to treat stones in the ureter.
- **Percutaneous Nephrolithotomy:** This is done under general anaesthesia with a small incision in the back for insertion of a tube into the kidney. Through the tube a scope can be inserted to fragment and remove the stone.
- **Cystolitholapaxy**
- **Laparoscopic/Open Surgery**