Clinician suspects Patient has **UTI –Flowchart for women (under 65 years) with suspected UTI**

*This guide excludes patients with recurrent UTI (2 episodes in last 6 months, or 3 episodes in last 12 months*

**North West Surrey - System wide Pathway Suspected UTI**

Key: Suspected sepsis alert | UTI symptom | Action advised | Other advice

Urinary signs/symptoms

YES

**First exclude vaginal and urethral causes of urinary symptoms:**

- ☐ vaginal discharge: 80% do not have UTI
- ☐ urethritis - inflammation post sexual intercourse, irritants
- ☐ check sexual history to exclude sexually transmitted infections
- ☐ genitourinary syndrome of menopause (vulvovaginal atrophy)[7C,8D,9B+]

YES → Follow relevant diagnostic guide and safety-netting

NO

☐ **THINK SEPSIS - check for signs/symptoms using local/national tool** such as NICE, RCGP or NEWS2

☐ **check for any new signs/symptoms of pyelonephritis** *see box below

YES → **Consider pyelonephritis or suspected sepsis:**

- send urine for culture

immediately start antibiotic/management for upper UTI/sepsis using PHE antimicrobial prescribing guidance

***Signs of pyelonephritis:**

- ☐ kidney pain/tenderness in back under ribs
- ☐ new/different myalgia, flu like illness
- ☐ shaking chills (rigors) or temperature 37.9°C or above
- ☐ nausea/vomiting

NO

**Does patient have any of 3 key diagnostic signs/symptoms?**

- ☐ **dysuria** (burning pain when passing urine)
- ☐ **new** nocturia (passing urine more often than usual at night)
- ☐ **urine** cloudy to the naked eye

| 2 or 3 symptoms | 1 symptom | no |
|---|---|---|

**Are there other urinary symptoms that are severe?**

- ☐ Frequency
- ☐ suprapubic tenderness
- ☐ Urgency
- ☐ Visible Haematuria

YES

YES

YES

Perform Urine Dipstick Test

POSITIVE nitrite OR leukocyte and RBC POSITIVE

UTI likely

NEGATIVE nitrite POSITIVE leukocyte

UTI equally likely to other diagnosis

NEGATIVE for ALL nitrite, leukocyte, RBC

UTI LESS likely

No urine culture

Reassure that UTI less likely

Consider other diagnosis

Send urine culture if risk of antibiotic resistance[18A+] If not pregnant and mild symptoms, watch & wait with back-up antibiotic **OR** Consider immediate antibiotic using: PHE antimicrobial prescribing guidance

Review time of specimen (*morning is most reliable*. Send urine for culture to confirm diagnosis Consider immediate or back-up antibiotic (if not pregnant) depending on symptom severity using PHE antimicrobial prescribing guidance

ALL PATIENTS: share self-care and safety-netting advice using TARGET UTI leaflet

**UTI –Flowchart for men and women (over 65 years) with suspected UTI -** Urinary signs/symptoms, abnormal temperature, non-specific signs of infection

**North West Surrey - System wide Pathway Suspected UTI**

**Do not perform urine dipsticks –** Dipsticks become more unreliable with increasing age over 65 years. Up to half of older adults, and most with a urinary catheter, will have bacteria present in the bladder / urine without infection. This asymptomatic bacteria is not harmful, and although it causes a positive dipstick, antibiotics are not beneficial and may cause harm

All

**THINK SEPSIS - check for signs/symptoms using local or national tool** Such as NICE, RCGP or NEWS2 **CHECK for signs/symptoms of pyelonephritis**

- ☐ kidney pain/tenderness in back, under ribs
- ☐ new/different myalgia, flu-like illness
- ☐ nausea/vomiting
- ☐ shaking chills (rigors)

OR temp over 37.9°C OR 36°C or below

rule out other cause

*see box below

Yes

**Consider sepsis OR pyelonephritis**

- if urinary catheter: consider changing or removing before starting antibiotics
- send urine for culture
- immediately start antibiotic/management for upper UTI/sepsis using PHE antimicrobial prescribing guidance guidelines for sepsis, and considering resistance risk
- refer if signs/symptoms of serious illness or condition

No

**CHECK ALL FOR NEW signs/symptoms of UTI**

- ☐ new onset dysuria alone

**OR two or more:**

- ☐ temperature 1.5°C above patient's normal twice in the last 12 hours
- ☐ new frequency or urgency
- ☐ new incontinence
- ☐ new or worsening delirium/debility
- ☐ new suprapubic pain
- ☐ visible haematuria

**If fever and delirium/debility only**: consider other causes before treating for UTI (*see box below)

**If urinary catheter:** also check for catheter blockage AND consider catheter removal or replacement **Consider** Genitourinary Syndrome of Menopause (vulvovaginal atrophy), urethritis, sexually transmitted infections, and prostatitis

Yes

**UTI LIKELY:** share self-care and safety-netting advice using TARGET UTI leaflet[22D,23B+]

- always send urine culture if feasible before starting antibiotics, as greater resistance in older adults
- if mild symptoms consider back-up antibiotics in women without catheters and low risk of complcations
- offer immediate antibiotics using NICE/PHE guideline on lower UTI: antimicrobial prescribing[24A+,26A+]
- review antibiotic choice and culture result

**If indwelling urinary catheter for over 7days**

- consider changing (if possible remove) catheter as soon as possible (before giving antibiotic) and send MSU or urine from new catheter for culture

No

**CHECK for other causes of delirium if relevant (PINCH ME)**

- ☐ **P:** **P**ain
- ☐ **I:** other **I**nfection
- ☐ **N:** poor **N**utrition
- ☐ **C:** **C**onstipation
- ☐ **H:** poor **H**ydration
- ☐ **M:** other **M**edication
- ☐ **E:** **E**nvironment change

**CHECK ALL for other localised symptoms/signs** *Two or more symptoms or signs of:

- ☐ respiratory tract infection
- ☐ gastrointestinal tract infection
- ☐ skin and soft tissue infection

Yes

**Consider other local/national resources for delirium management** Give safety-netting advice about consulting if:

- worsening symptoms
- signs of pyelonephritis
- any symptom/sign of sepsis

Yes

Follow local diagnostic and treatment guidance

All

No

Advise "watchful waiting" with further investigation for other causes

All

**If worsening signs or symptoms consider:**

Key:

| Urgent alert | UTI signs/symptoms | Action advised | Other advice |
|---|---|---|---|

# Flowchart for Infants/children with suspected UTI

Consider UTI in any sick child and every young child with unexplained fever

**North West Surrey - System wide Pathway Suspected UTI**

**Check temperature and symptoms in all infants/children**

- unexplained fever 38°C or more OR
- loin pain/ tenderness suggesting pyelonephritis

**YES** →

**Consider referral** to a paediatric specialist

**Test urine** within 24 hours

**If urine test positive,** treat with antibiotic using Surrey Pad guideline on pyelonephritis: antimicrobial prescribing PHE antimicrobial prescribing guidance

**NO** ↓

**Management depends on age and symptoms**

**Infants younger than 3 months:**

**Most common symptoms:** fever, vomiting, lethargy, irritability, poor feeding, failure to thrive

**Less common**: abdominal pain, jaundice, haematuria, offensive urine

**Refer urgently** to paediatric specialist care AND send a urine sample for urgent microscopy and culture

**Infant or child over 3 months with suspected UTI:**

**Most common symptoms:** fever, frequency, dysuria, abdominal pain, loin tenderness, vomiting, poor feeding, dysfunctional voiding, changes to continence

**Less common:** lethargy, irritability, haematuria, offensive urine, failure to thrive, malaise, cloudy urine

Perform a urine dipstick test

**POSITIVE nitrite AND POSITIVE leucocyte**

**Treat as UTI**
AND start antibiotic

**Send urine for culture if:**

- under 3 years
- suspected pyelonephritis
- risk of serious illness
- past UTI
- no response to treatment and urine sample not already sent

**POSITIVE nitrite NEGATIVE leucocyte**

**Treat as UTI** AND start antibiotic if dipstick on fresh urine sample

Send urine for culture to confirm diagnosis and reassess with result

Repeat urine if not fresh (as old samples can give false positives)

**NEGATIVE nitrite POSITIVE leucocyte**

**Send urine for culture**

**Under 3 years:** start antibiotic and reassess with culture result

**Over 3 years**: only start antibiotics if good clinical evidence of UTI; leucocytes may indicate infection outside urinary tract

**NEGATIVE nitrite AND NEGATIVE leucocyte**

**UTI unlikely**

Do not start antibiotics Exclude other causes
**Send urine for culture if:**

- suspected pyelonephritis
- risk of serious illness
- under 3 months
- recurrent UTI
- no response to treatment within 24-48 hours and urine sample not sent
- symptoms and dipsticks results do not correlate

In ALL follow NICE/PHE guideline on lower UTI: antimicrobial prescribing, safety-net and give self-care advice: advise carer to bring the infant or child for reassessment if the infant or child is not improved or worse after 24–48 hours
Refer to NICE CG54 for other things to consider in suspected UTI in children. For treatment refer to joint NICE/PHE guidance: NICE guidelines on UTI (lower): antimicrobial prescribing or NICE guidelines on pyelonephritis (acute): antimicrobial prescribing

## Diagnostic points for men under 65 years - Asymptomatic bacteriuria is rare in men <65yrs[4C]

**Consider other genitourinary causes of urinary symptoms**

- in sexually active, check sexual history for STIs for example chlamydia and gonorrhoea
- urethritis due to urethral inflammation post sexual intercourse, irritants, or STIs

**Check for pyelonephritis, prostatitis, systemic infection, or suspected sepsis using local policy**

- urinary symptoms with fever or systemic symptoms in men are strongly suggestive of prostatic involvement or pyelonephritis
- acute prostatitis may present with feverish illness of sudden onset, symptoms of prostatitis (low back, suprapubic, perineal, or sometimes rectal pain), symptoms of UTI (dysuria, frequency, urgency or retention), or exquisitely tender prostate on rectal examination
- recurrent or relapsing UTI in men should prompt referral to urology for investigation

**Diagnostic points in men**

- always send a mid-stream urine sample for culture, collected before antibiotics are given
- dipsticks are poor at ruling out infection. Positive nitrite makes UTI more likely (PPV 96%). Negative for both nitrite and leucocyte makes UTI less likely, especially if symptoms are mild
- if suspected UTI, offer immediate treatment according to NICE/PHE guideline on lower UTI: Surrey Pad: http://pad.res360.net/ antimicrobial prescribing and review choice of antibiotic with pre-treatment culture results

**Sampling in children:**

- **if sending a urine culture, obtain sample before starting antibiotics**
- **if child has alternative site of infection do not test urine unless remain unwell - then test within 24 hour**
- **in infants/toddlers, clean catch urine advised; gentle suprapubic cutaneous stimulation using gauze soaked in cold fluid helps trigger voiding; clean catch urine using potties cleaned in hot water with washing up liquid; nappy pads cause more contamination, and parents find bags more distressing**
- **if non-invasive not possible consider: catheter sample, or suprapubic aspirate (with ultrasound guidance)**
- **culture urine within 4 hours of collection, if this is not possible refrigerate, or use boric acid preservative. Boric acid can cause false negative culture if urine not filled to correct mark on specimen bottle**

**Interpretation of culture results in children:**

- **single organism >106 cfu/L (103 cfu/mL) may indicate UTI in voided urine**
- **any growth from a suprapubic aspirate is significant**
- **pyuria >107 WBC/L (104 WBC/mL) usually indicate UTI, especially with clinical symptoms but may be absent**

**Other diagnostic tests: do not use CRP to differentiate upper UTI from lower UTI -Ultrasound: if proven UTI is atypical (seriously ill, poor urine flow, abdominal or bladder mass, raised creatinine, septicaemia, failure to respond to antibiotic within 48 hours, non-E.coli infection): ultrasound all children in acute phase and undertake renal imaging within 4-6 months if under 3 years. ALL ages with recurrent UTI for children under 6 months OR those with non-E.coli UTI: ultrasound within 6 weeks if UTI not atypical AND responding to antibiotics**