



West Essex Clinical Commissioning Group



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# Diagnosis and Management of UTI in Community Settings

**Committee:**

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**References:**

Healthcare Improvement Scotland. Scottish Intercollegiate Guidelines Network (SIGN) 88: Management of suspected bacterial urinary tract infection in adults 2012.

[www.sign.ac.uk/guidelines/fulltext/88/index.html](http://www.sign.ac.uk/guidelines/fulltext/88/index.html)

HPA. Diagnosis of UTI quick reference guide for primary care.

[www.hpa.org.uk](http://www.hpa.org.uk) updated 2011

## Lower Urinary Tract Infection Diagnosis and Management

This protocol is developed for non-pregnant women and men over 16 years of age with lower urinary tract infection.

Guidance for UTI diagnosis and management of individuals under 16 is found at:

<http://guidance.nice.org.uk/CG54> Nice CG54: Urinary Tract Infection diagnosis treatment and long term management of urinary tract infection in children

### Introduction

Urinary tract infection (UTI) is the second most common clinical indication for empirical antimicrobial treatment in primary and secondary care, and urine samples constitute the largest single category of specimens examined in most medical microbiology laboratories.

Healthcare practitioners regularly have to make decisions about prescription of antibiotics for urinary tract infection. Criteria for the diagnosis of urinary tract infection vary greatly in the UK, depending on the patient and the context. There is considerable evidence of practice variation in use of diagnostic tests, interpretation of signs or symptoms and initiation of antibiotic treatment, with continuing debate regarding the most appropriate diagnosis and management.

The diagnosis of UTI is particularly difficult in elderly patients, who are more likely to have asymptomatic bacteriuria as they get older. Indeed, the prevalence of bacteriuria may be so high that urine culture ceases to be a reliable diagnostic test.

Elderly institutionalised patients frequently receive unnecessary antibiotic treatment for asymptomatic bacteriuria despite clear evidence of adverse effects with no compensating clinical benefit.

Existing evidence based guidelines tend to focus on issues of antibiotic treatment (drug selection, dose, duration and route of administration) with less emphasis on clinical diagnosis.

For patients with symptoms of urinary tract infection and bacteriuria, the main aim of treatment is relief of symptoms. Secondary outcomes are adverse effects of treatment or recurrence of symptoms.

For asymptomatic patients the main outcome from treatment is prevention of future symptomatic episodes.

Unnecessary use of tests and antibiotic treatment may be minimised by developing simple decision rules, which is the prime objective of these guidelines.

## Key Summary Points

- Prudent antibiotic prescribing is a key component of the UK's action plans for reducing antimicrobial resistance
- Unnecessary antibiotic treatment of asymptomatic bacteriuria is associated with significantly increased risk of clinical adverse events including the development of antibiotic-resistant UTIs
- In people aged over 65 years, asymptomatic bacteriuria is common, but is not associated with increased morbidity
- In patients with an indwelling urethral catheter, antibiotics do not generally eradicate asymptomatic bacteriuria
- Use dipstick tests to guide treatment decisions in otherwise healthy women under 65 years of age presenting with mild or  $\leq 2$  symptoms of UTI. They can be used over 65 years of age only if justified by prior careful clinical assessment
- In all men with symptoms of UTI a urine sample should be taken for culture
- Consider empirical treatment with an antibiotic for otherwise healthy women aged less than 65 years of age presenting with severe or  $\geq 3$  symptoms of UTI
- Treat non-pregnant women of any age with symptoms or signs of acute lower UTI with a three day course of trimethoprim or nitrofurantoin
- Particular care should be taken when prescribing nitrofurantoin to elderly patients, who may be at increased risk of toxicity
- Do not treat non-pregnant women (of any age) with asymptomatic bacteriuria with an antibiotic
- NEVER use dipstick testing to diagnose UTI in catheterised patients
- Do not routinely prescribe antibiotic prophylaxis to prevent symptomatic UTI in patients with catheters
- Do not treat catheterised patients with asymptomatic bacteriuria with an antibiotic

## DECISION RULES

### A: ADULT WOMEN UNDER 65 YEARS

The probability of bacteriuria in otherwise healthy women who present to their general practitioner (GP) with symptoms of acute UTI is estimated at between 50-80%.

#### Symptoms include:

- Dysuria
- Frequency of urination
- Supra-pubic tenderness
- Urgency
- Polyuria
- Haematuria

If dysuria and frequency are both present, then the probability of UTI is increased to >90% and **empirical treatment with an antibiotic is indicated.**

Consider empirical treatment with an antibiotic for otherwise healthy women aged less than 65 years presenting with severe or > 3 symptoms of UTI.

Dipstick tests are usually only advised to guide treatment decisions in otherwise healthy women under 65 years of age if they present with ≤2 symptoms of possible UTI.

- Dipstick must be positive for **BOTH** Leucocyte Esterase (LE) and Nitrites. If negative to either or both LE and Nitrites consider alternate diagnosis
- Give first line antibiotic treatment if positive for **BOTH** LE and Nitrites
- In cases of recurrent infection it is essential that treatment is guided by a carefully collected urine sample
- if vaginal discharge is present, the probability of bacteriuria falls. Alternative diagnoses such as sexually transmitted diseases (STDs) and vulvovaginitis, usually due to candida, are likely and pelvic examination is indicated.

### B: ADULT WOMEN OVER 65 YEARS

In elderly patients (over 65 years of age), diagnosis should be based on a full clinical assessment, including vital signs.

Asymptomatic bacteriuria becomes increasingly common with age and treatment of asymptomatic bacteriuria does not reduce mortality or significantly reduce symptomatic episodes. Antibiotic treatment significantly increases the risk of adverse events, such as rashes and gastrointestinal symptoms. For this reason, dip stick testing becomes unreliable in the over 65 year old population and should be used with careful discretion to guide treatment decisions in otherwise healthy women over 65 years of age if they present with 2 or more symptoms of possible UTI. Dip stick must never be used on catheterised patients or patients with diarrhoea because they are invalid in this group.

## C: ADULT MEN

- Urinary tract infections in men are generally viewed as complicated because they result from an anatomic or functional anomaly or instrumentation of the genitourinary tract.
- Conditions like prostatitis, chlamydial infection and epididymitis should be considered in the differential diagnosis of men with acute dysuria or frequency and appropriate diagnostic tests should be considered.
- There is no evidence to suggest the best method of diagnosing bacterial UTI in men. Evidence from studies of women cannot be extrapolated.
- Urine microscopy should not be undertaken in clinical settings in primary or secondary care.
- **In all men with symptoms of UTI a urine sample should be taken for culture.**
- In patients with a history of fever or back pain the possibility of upper UTI should be considered.
- At least 50% of men with recurrent UTI and over 90% of men with febrile UTI have prostate involvement, which may lead to complications such as prostatic abscess or chronic bacterial prostatitis.
- Due to their ability to penetrate prostatic fluid, quinolones rather than nitrofurantoin or cephalosporins are indicated.
- Treat bacterial UTI empirically with a quinolone in men with symptoms suggestive of prostatitis.
- There is no good evidence indicating the optimum length of treatment, but the consensus between HPA and other UK bodies is that a four week course is appropriate for men with symptoms suggestive of prostatitis.

## D: CATHETERISED PATIENTS

- Between two and seven per cent of patients with indwelling urethral catheters acquire bacteriuria each day, even with the application of best practice for insertion and care of the urinary catheter.
- All patients with a long term indwelling catheter are bacteriuric, often with two or more organisms.
- The catheter provides a focus for bacterial biofilm formation. The majority of data comes from studies in elderly patients with long term indwelling catheters. There is no evidence to suggest that the prevalence in younger short- or long term catheterised patients, such as those with multiple sclerosis or spinal cord injury, is any different.
- Duration of catheterisation is strongly associated with the risk of infection. The longer the catheter is in place the greater the likelihood of infection.
- Intermittent catheterisation is associated with a lower incidence of asymptomatic bacteriuria.
- The presence of a short- or long term indwelling catheter is associated with a greater incidence of fever of urinary tract origin. Fever without any localising signs is a common occurrence in catheterised patients and urinary tract infection accounts for about a third of these episodes.
- In patients with short-or long term catheters fever is associated with a higher occurrence of local urinary tract and systemic complications such as bacteraemia.
- Although mortality appears to be higher in patients with long term indwelling catheters, there is no causative link with catheterisation or urinary tract infection.
- Urinary tract infection is the most common hospital acquired infection in the UK, accounting for 23% of all infections and the majority of these are associated with catheters.
- Catheter-associated UTI is the source for 8% of hospital acquired bacteraemia.
- In catheterised patients the common occurrence of fever, the consistent presence of bacteriuria, and the variable presence of a broad range of other associated clinical manifestations (new onset confusion, renal angle tenderness or suprapubic pain, chills/rigors etc) makes the diagnosis of symptomatic UTI difficult.

- Current suggested criteria for diagnosing UTI in catheterised patients are not evidence based.
- A clinical algorithm for suspected UTI in catheterised and non-catheterised residents in nursing homes suggests that the presence of one of the following symptoms should stimulate antibiotic therapy
  - i. new costovertebral tenderness
  - ii. rigors
  - iii. new onset delirium
  - iv. fever greater than 37.9°C or 1.5°C above baseline on two occasions during 12 hours.
- No particular constellation of symptoms or clinical signs, for example, fever or chills, new flank or suprapubic tenderness, change in character of urine or worsening of mental or functional status, appears to increase the likelihood of a symptomatic urinary tract infection in catheterised patients.
- Do not rely on classical clinical symptoms or signs for predicting the likelihood of symptomatic UTI in catheterised patients.
- Only send urine samples for laboratory culture if the patient has clinical sepsis, not because the appearance or smell of the urine suggests that bacteriuria is present.
- Dipstix must NEVER be used to diagnose infection in catheterised patients
- Do not give antibiotics 'prophylactically'
- There is no evidence base to use antibiotics at routine catheter changes unless prosthesis is in place.



## INFORMATION TO AID DIAGNOSIS

If you are contacting a GP for your patient or resident the following information should be given to assist in diagnosing urinary tract infection

### For people without urinary catheters:-

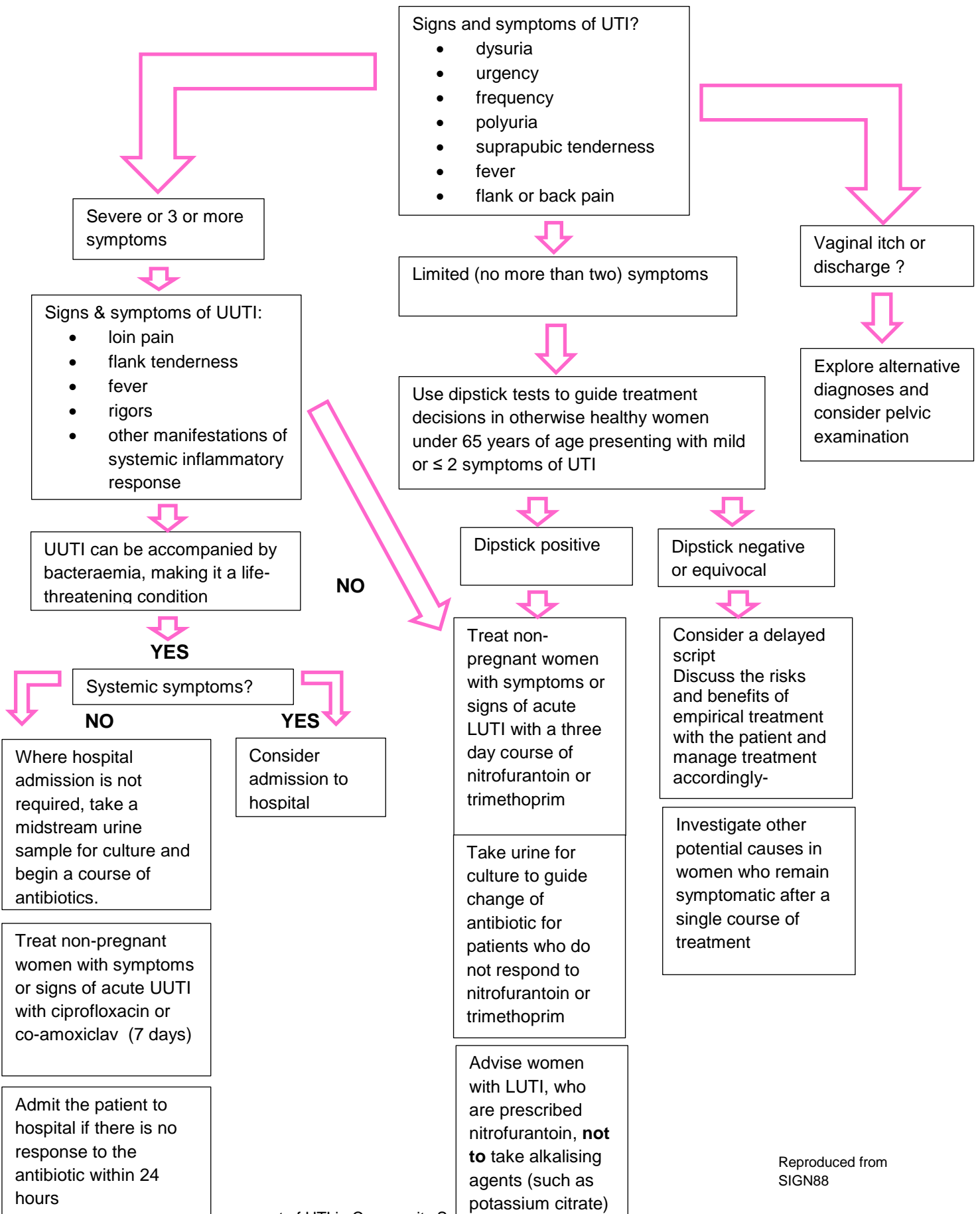
1. List of symptoms present which may include:-
  - Difficulty or pain in passing urine
  - Passing urine more often than usual
  - Passing a lot more urine than usual
  - Tenderness in lower abdomen
  - Urgency or need to pass urine immediately with little warning
  - Blood in the urine
  - Increased or new onset confusion
  
2. **DIPSTCKs should only be used for women under 65 years of age who have 2 or less symptoms**

**Do not use dipsticks for:-**

  - **Patients or residents over 65 years of age**
  - **Patients or residents with urinary catheters**
  - **Male patients or residents who are under 65 years of age**
  - **Patients or residents with diarrhoea**



# MANAGEMENT OF SUSPECTED UTI IN WOMEN (Not Pregnant)





# MANAGEMENT OF SUSPECTED UTI IN ADULT MEN

Symptoms and signs of UTI

- dysuria
- urgency
- frequency
- polyuria
- suprapubic tenderness

**Differential diagnosis should include acute prostatitis, chlamydial infection, epididymitis**

In all men with symptoms of UTI a urine sample should be taken for culture

Recurrent UTI or failure to respond to treatment



Refer for urological investigation

History of fever or back pain?



**YES**

Consider the possibility of UUTI

Treat men with symptoms suggestive of prostatitis empirically with a quinolone



**NO**

Confirm diagnosis with dipstick.  
Treat as uncomplicated lower UTI with a 7 day course of trimethoprim or nitrofurantoin

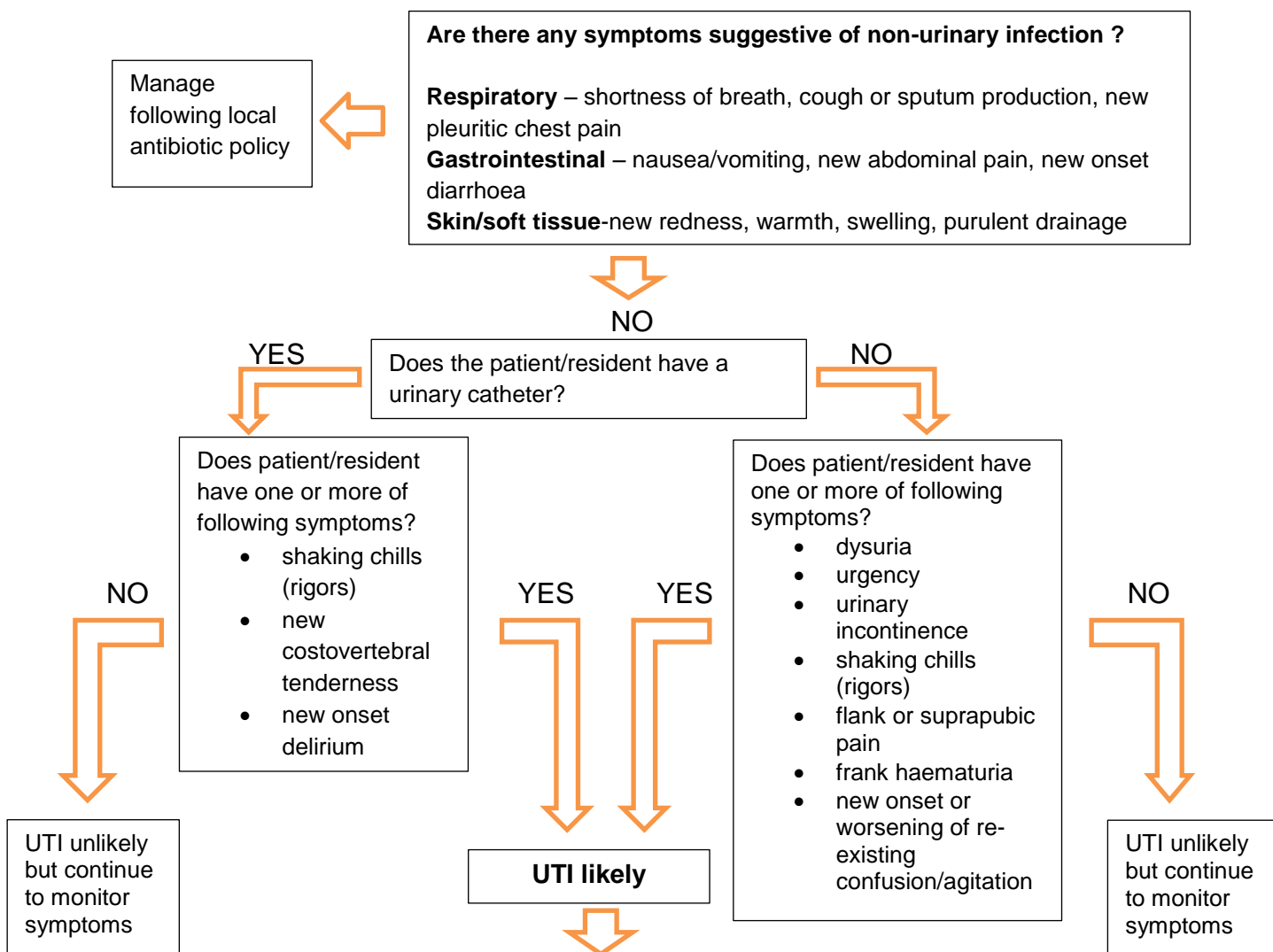


# DIAGNOSIS AND MANAGEMENT OF SUSPECTED UTI IN OLDER PEOPLE

Decision aid to guide management of patients/residents with fever defined as temperature >37.9°C or 1.5°C increase above baseline occurring on at least two occasions in last 12 hours.

Hypothermia (low temperature of <36°C) may also indicate infection, especially those with comorbidities.

Be alert to non-specific symptoms of infection such as abdominal pain, alteration of behaviour or loss of diabetes control.



- Assess if retention or sub-acute retention of urine is likely (eg blocked catheter or distended bladder)
- DO NOT use dipstick test in diagnosis of UTI in older people
- Obtain a sample for urine culture and send to Microbiology
- Start antibiotic therapy following local policy or as advised by Microbiology
- If patient has a urinary catheter, remove and replace it. Consider the ongoing need for a long term catheter in consultation with specialists
- Consider use of analgesia (paracetamol or ibuprofen) to relieve pain
- Consider admission to hospital if patient has fever with chills or new onset hypotension (low blood pressure)
- Review response to treatment daily and if no improvement of symptoms or deterioration, consider admission to hospital or an increased level of care