



# **Management of suspected bacterial urinary tract infections in older people**

**based on SIGN 88**

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# Bacterial urinary tract infection (UTI's)

- UTI's are common and usually pass within a few days or easily treated with antibiotics
- Are often caused by bacteria that live in our digestive system
- Are more common in women than in men, due to the female urethra being shorter and nearer the anus



# Need for guideline

- UTI is the second most common clinical indication for empirical antimicrobial treatment in primary care and secondary care
- Urine samples constitute the largest single category of specimens examined
- Diagnosis of UTI is particularly difficult in elderly patients, who are more likely to have asymptomatic bacteriuria as they get older
- Elderly care home residents frequently receive unnecessary antibiotic treatment for asymptomatic bacteriuria



# Key messages about bacterial UTI

- Bacteriuria is not a disease
  - Prevalence of bacteriuria is uncommon in those aged under 65, but prevalence increases with increasing age in those over 65 years
- Tests for bacteriuria do not establish the diagnosis of UTI
  - Primary diagnosis to be based on signs and symptoms
- Bacteriuria alone is rarely an indication for antibiotic treatment



# Signs and symptoms of UTI in older people

Have two or more of the following symptoms

- Dysuria
- Urgency
- Frequency
- Urinary incontinence or deterioration of incontinence
- Rigors
- Flank or suprapubic pain
- Frank haematuria
- New onset or worsening of pre existing confusion/ agitation
- Fever defined as temperature  $>37.9^{\circ}\text{C}$  or  $1.5^{\circ}\text{C}$  increase above baseline occurring on at least 2 occasions in last 12 hours



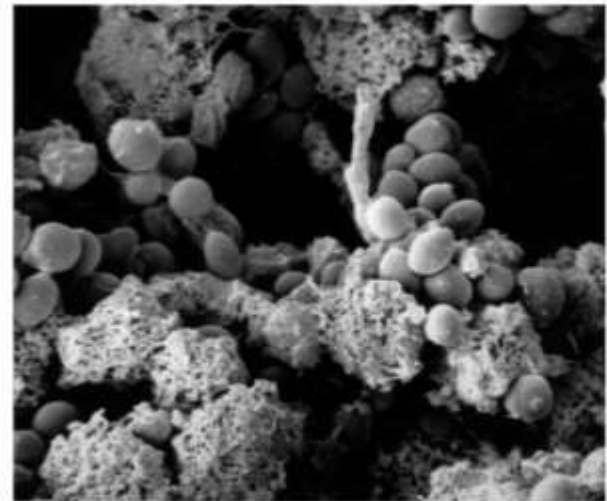
# What is a CAUTI?

- CAUTI: Catheter associated urinary tract infection
- For every day a catheter is left in, **5-10%** of patients will become colonised with bacteria.
- Unless catheterisation is short term all patients can be assumed to have bacteria in their urine.
- The risk of CAUTI increases the longer a urinary catheter remains in situ



# Why do catheters become infected?

- Normal defence mechanism bypassed
- Biofilm
- Extraluminal versus intraluminal



**Figure 2.** Scanning electron micrograph of an infected catheter showing dense and complex biofilm on the extraluminal surface. Urine culture at catheter removal yielded *Candida albicans*  $10^6$  CFU/mL and *C. glabrata*  $10^4$  CFU/mL (X 5000).

# Signs and symptoms of CAUTI

- Most common symptom, fever, is a non-specific presenting symptom in symptomatic UTI and the absence of fever does not appear to exclude UTI
- The presence of one of the following symptoms should stimulate antibiotic therapy
  - New costo-vertebral tenderness
  - Rigors
  - New onset delirium
  - Fever greater than 37.9°C or above 1.5°C above baseline on two occasions during 12 hours





# Near patient testing

- Do not use dipstick testing to diagnose UTI in patients with catheters
- Only send CSU when symptomatic and should be obtained from catheter portal



# Treatment of CAUTI

- **Do not treat asymptomatic patients with an antibiotic**
- Amend/start treatment based on sensitivities
- It is recommended to change long term indwelling catheters before/shortly after starting antibiotic treatment for symptomatic UTI
- **Antibiotic prophylaxis is not recommended for catheter changes** unless a patient has a history of CAUTI following catheter changes.



# Impact on antimicrobial resistance

- Inappropriate diagnosis leads to :-

Unnecessary antibiotics

Increased risk of CDI

Development of multidrug –resistant organisms and limited treatment options

Treatment failure when antibiotics are prescribed without checking sensitivities from CSU



# Dipstick tests

- The quality of evidence for testing urine with a dipstick is poor
- Dipstick tests are only indicated for women who have minimal signs and symptoms
- Negative test does not exclude bacteriuria
- No robust evidence has identified describing leucocyte or nitrite testing in elderly residents

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

- **People >65years: do not routinely dipstick to exclude UTI (NECS antibiotic prescribing guideline for primary care)**



# Urine culture

- The quality of a urine sample will affect the ability to detect bacteria and confirm a diagnosis of UTI
- The main value of urine culture is to identify bacteria and their sensitivity to antibiotics
- In all men with symptoms of UTI a urine sample should be taken for culture



# Pilot in Barnard Castle

- GP's reported care homes sending large number of inappropriate urine samples
- Increased incidence of ESBL – extended spectrum beta lactamase in urine samples in care homes
- Care home staff not always aware why sample sent
- Lack of understanding of signs and symptoms of UTI's
- Practice of dipsticking MSU's and CSU's and prescribing antibiotics on the result of dipstick
- Lack of understanding of catheter care
- Not maintaining personal hygiene when changing incontinence pads

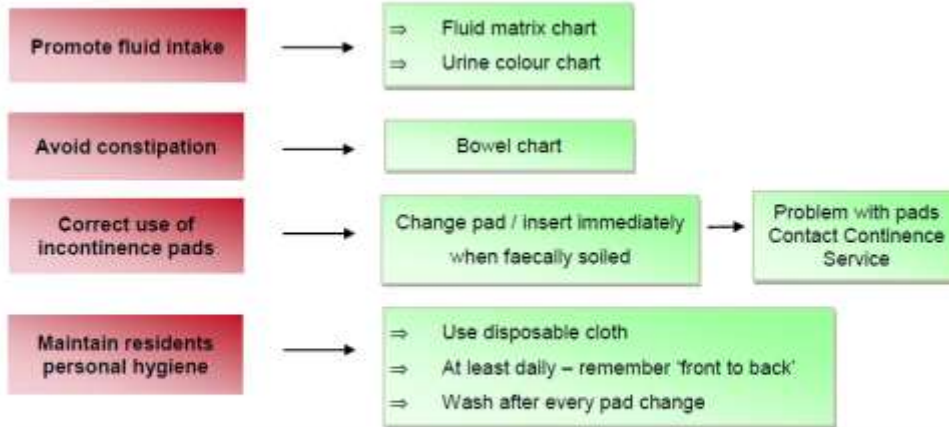


# What happened next

- Discussed problem with lead PN in GP surgery
- GP practice already using standard forms for care homes
- Developed new form for care home staff to completed
- Developed flow chart for care home staff
- Discussed forms and plan with other clinicians, community matrons, microbiologist
- Visited each of the three care homes to discuss the forms and the reason behind the recommended changes

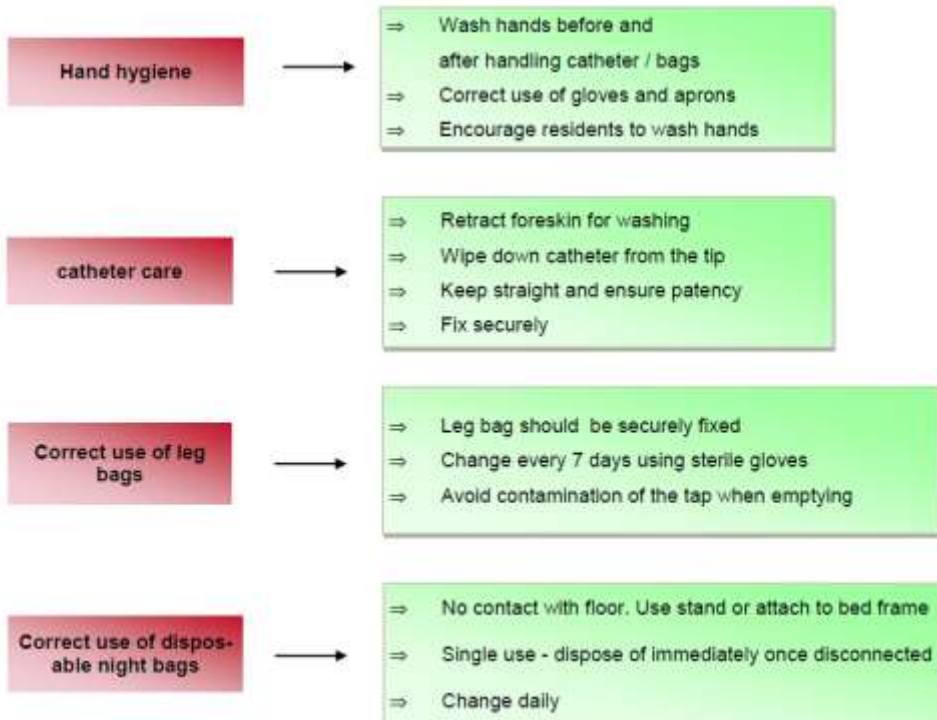


## Preventative Measures to Help Reduce UTIs in Care Home




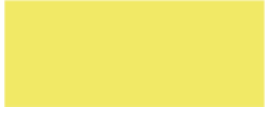



Extra precautions with catheterised residents.

**STOP! THINK! Avoid catheter if possible—has the resident been reviewed?**





## Dehydration Urine Colour Chart

	Probably well hydrated. Drink water as normal.
	Could stand to drink a little water now, maybe a small glass of water.
	Drink about 1/2 bottle of water (1/4 litre) within the hour, or drink a whole bottle (1/2 litre) of water if you're outside and/or sweating.
	Drink about 1/2 bottle of water (1/4 litre) right now, or drink a whole bottle (1/2 litre) of water if you're outside and/or sweating.
	Drink 2 bottles of water right now (1 litre). If your urine is darker than this and/or red or brown, then dehydration may not be your problem. Seek further advice.



## Fluid Matrix Chart

Residents should aim to drink about 8 mugs of fluid each day (approx 1.5 litres). If they do not drink enough they will produce concentrated urine. This is a guide for the recommended amount of fluid they should drink per day based on their weight.

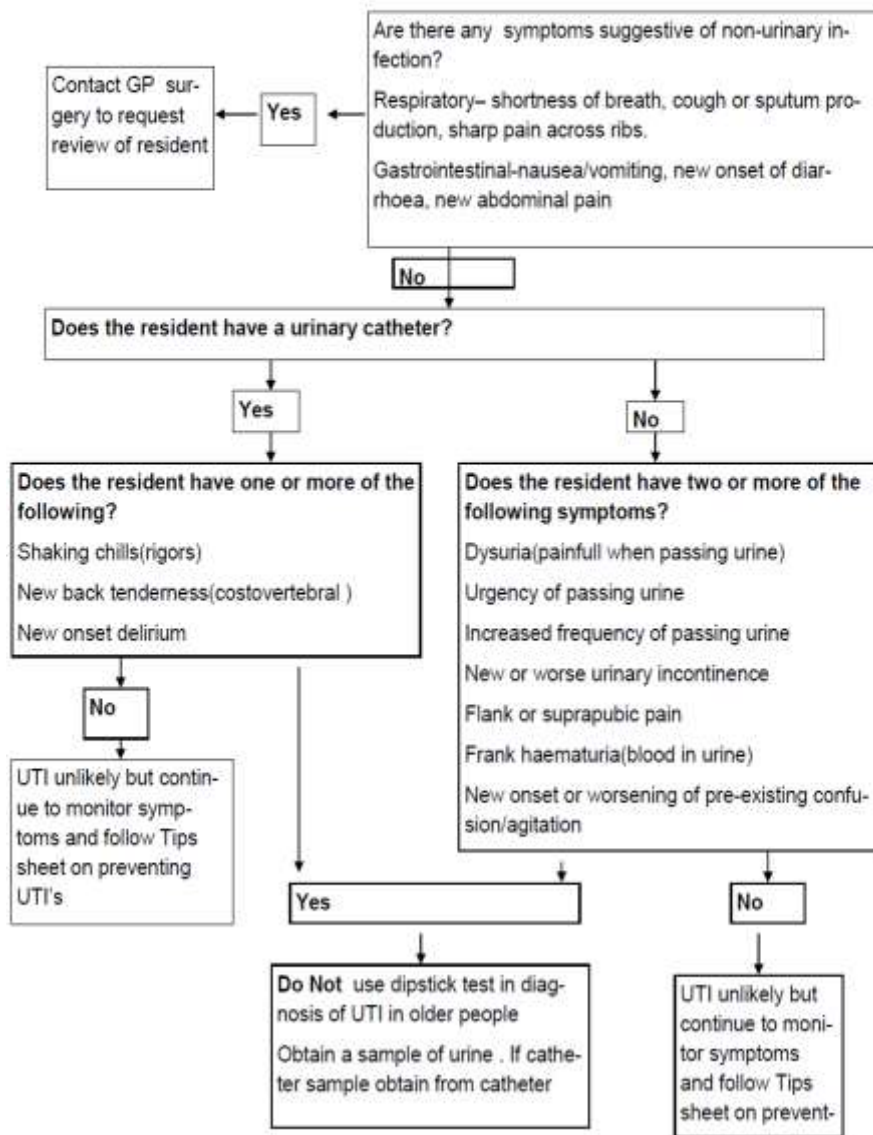
Weight stones	Weight Kg	mls	Fluid ozs	Pints	Mugs
6	38	1,190	42	2.1	4
7	45	1,275	49	2.5	5
8	51	1,446	56	2.75	5-6
9	57	1,786	63	3.1	6
10	64	1,981	70	3.5	7
11	70	2,179	77	3.75	7-8
12	76	2,377	84	4.2	8
13	83	2,575	91	4.5	9
14	89	2,773	98	4.9	10
15	95	2,971	105	5.25	10-11
16	102	3,136	112	5.5	11

This matrix is to be used as a guideline and broadly it is suggested that patients fall within a margin of error of +/- 10%. The guideline applies to body frame and gross obesity should not be taken as a guide for increasing fluid.



## Diagnosis and management of suspected urinary tract infection (UTI) in older people >65 years of age (SIGN 88)

If a resident has a fever, defined as temperature greater than 37.9°C or 1.5°C increase above baseline occurring on at least 2 occasions in last 12 hours, suggests they have an infection. Contact clinical staff to request review of resident.



## Urine sample form to be retained in records

Name \_\_\_\_\_

DOB \_\_\_\_\_

Please state reason sample of urine taken.

If taken for suspected UTI please complete following questions

If a resident has a fever, defined as temperature greater than 37.9°C or 1.5°C increase above baseline occurring on at least 2 occasions in last 12 hours, suggests they have an infection. **Contact clinical staff to request review of resident**

**Non catheterised** resident answer **questions 1-8**. If two or more yes answers sample of urine to be sent for testing. **Do not dipstick urine if over 65 years of age**

	Question	Yes	No	Action
1	The resident has new or increased confusion?			If Yes seek GP/Nurse advice
2.	The patient complains of burning or pain on passing urine?			
3	The resident complains of new or increased frequency of passing urine?			
4	Does the resident have new or increased incontinence?			
5	Does the resident have new or increased urgency in passing urine?			
6	Does the resident have visible blood in urine?			If Yes seek GP/Nurse advice
7	Does the resident have flank (lower back ) or suprapubic pain?			If yes seek GP/Nurse advice
8	Is the resident experiencing shaking chills (rigors)?			If yes seek GP/Nurse advice

Catheterised patient one or more symptoms urine to be sent for testing. **Indicate on Lab request form resident is catheterisation. Do not dipstick**

	Question	Yes	No	Action
1	Is the resident experiencing shaking chills (rigors)?			If yes seek GP/Nurse advice
2	Does the resident have flank or suprapubic pain?			If yes seek GP/Nurse advice
3.	is the resident experiencing new onset delirium?			If yes seek GP/Nurse advice



# Results

After 3 months

- care home staff no longer dipsticking urine samples
- care home staff documenting why sample has been sent
- verbal feedback from all involved indicate that less samples have been sent
- GP's still requesting staff to dipstick urines
- HCA's working in surgery continue to dipstick urine



## What next

- Decision making tool sent to all care homes in County Durham and Darlington
- Continue education
- Continue to engage other clinicians involved in care homes
- How do we measure the impact of the pilot?

