

Wirral working together to improve hydration and prevent and improve treatment of Urinary Tract Infections

Based on To Dip or Not to Dip
A quality improvement project to improve the diagnosis of Urinary Tract Infections (UTIs)
Version 4 (May 2022). Review date: March 2026



Wirral University Teaching Hospital
NHS Foundation Trust



Wirral Community
Health and Care
NHS Foundation Trust



Cheshire and
Wirral Partnership
NHS Foundation Trust



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Wirral Health & Care
Commissioning



What will this training cover?

- Antimicrobial resistance
- Wirral's AMS strategy
- What causes a UTI and the assessment tool
- To identify the symptoms of UTI
- Why urine dipping should be avoided in the over 65s
- How and when to send a urine sample
- The importance of hydration
- The consequences of dehydration and how best to prevent it
- You will also be asked to complete an evaluation survey after the training

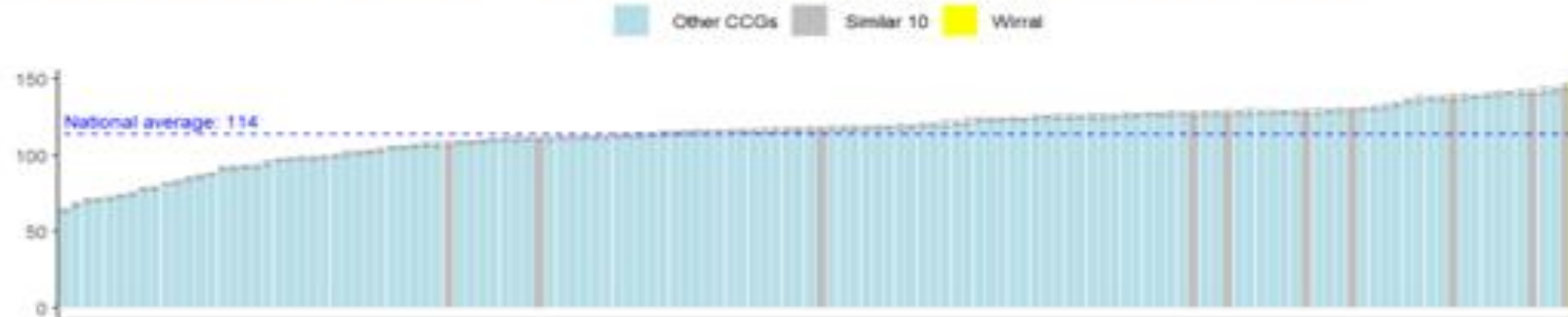
Why is there a need to improve UTI management?



- In Wirral, we are the highest prescribers of antibiotics for urinary tract infections.
- We are high prescribers in the older population 70+
- We have among the highest rate for admissions to hospital for UTI in England particularly in 70+ population
- Over use of antibiotics causes antibiotic resistance, so antibiotics no longer work
- We need to focus on preventing UTI to keep our older people well

Lower urinary tract infection - Combined antibiotic items per 1,000 STAR-PU population (antibacterial items) - FY 2019/20

Combined antibiotics includes those commonly prescribed in primary care to treat or prevent lower UTIs and include: Cefaclor, Cefadroxil, Cefalexin, Cefixime, Cefradine, Cefuroxime Axetil, Fosfomycin Calcium, Fosfomycin Trometamol, Nitrofurantoin, Pivmecillinam hydrochloride and Trimethoprim



Introduction video

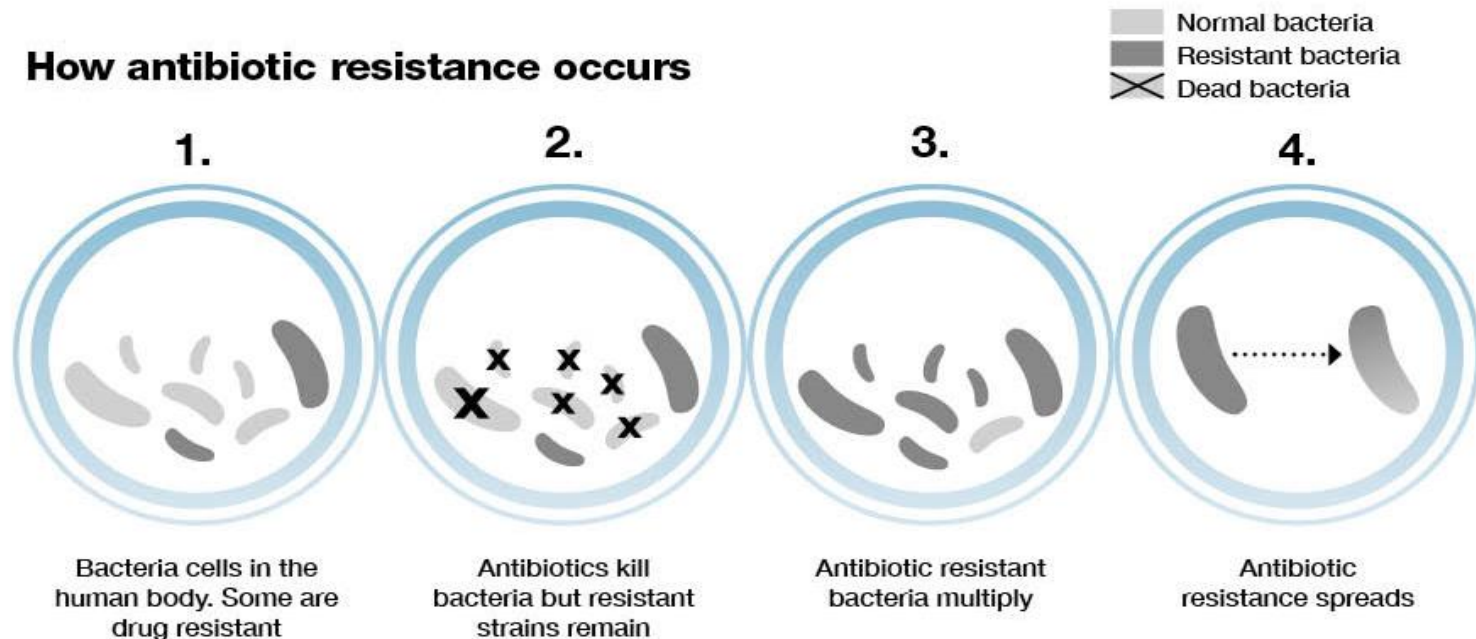


<https://www.youtube.com/watch?v=IX3bfhMSdcU>

Compassion | Open | Trust

Antibiotic Resistance

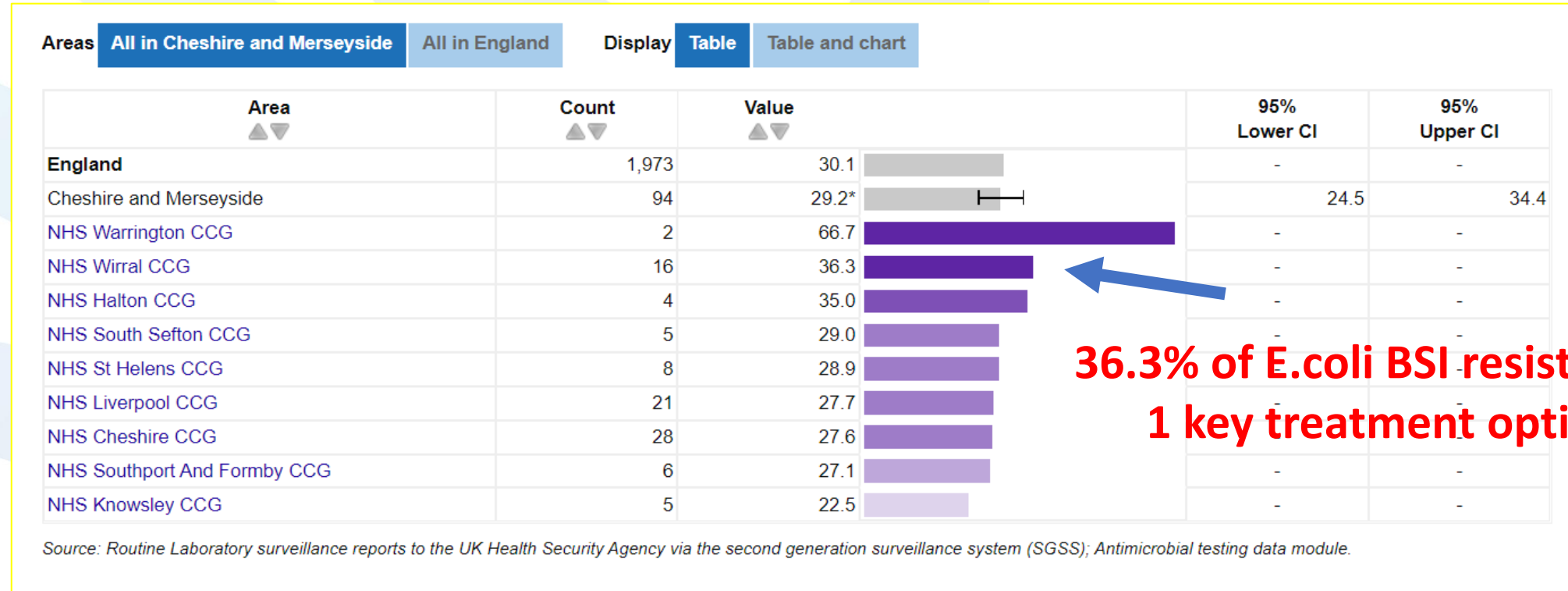
Antimicrobial or antibiotic resistance, is when the bacteria learn how to protect themselves from being killed by antibiotics. These resistant bugs can multiply and spread so that eventually, the antibiotics don't work at all.



AMR is NOT a future problem – it is NOW



Rolling quarterly average of *E.coli* blood specimens resistant to one of the key antibiotics (gentamicin, 3rd gen cephalosporins, ciprofloxacin, piperacillin/tazobactam)



Wirral AMS Strategy



Reduce total antibiotic prescribing – Wirral CCG to meet or fall below the national average



Achieve assurance of appropriate review and duration of IV antibiotics within 72 hours of initiation in 95% of patients including inpatients and patients receiving outpatient IV therapy



Reduce antibiotic prescribing for Urinary Tract Infection – Wirral CCG to meet or fall below the national average



Reduce broad-spectrum antibiotic prescribing in primary care to allow GP practices to meet the national target of 10% or less



Reduce admissions to hospital for UTI by 10% or more based on the 2019 admission rate



Support the Wirral Gram Negative Blood Stream Infection Group to reduce healthcare associated Gram-negative blood stream infections aiming for a 50% reduction compared to 2019

Urine sampling

Rationale

A urine sample can help to:

- Determine whether the person's symptoms are caused by a UTI or are more likely to be another problem
 - Make sure that any antibiotic the person is being treated with is appropriate in order to kill the bacteria causing the UTI
 - Identify resistant bacteria
- (NB: People who are 70+ years and/or live in a care home are more likely to have an infection caused by antibiotic resistant bacteria)

Who should samples be sent for?

Urine samples should be sent for all adults presenting with a possible UTI who fall within the following categories:

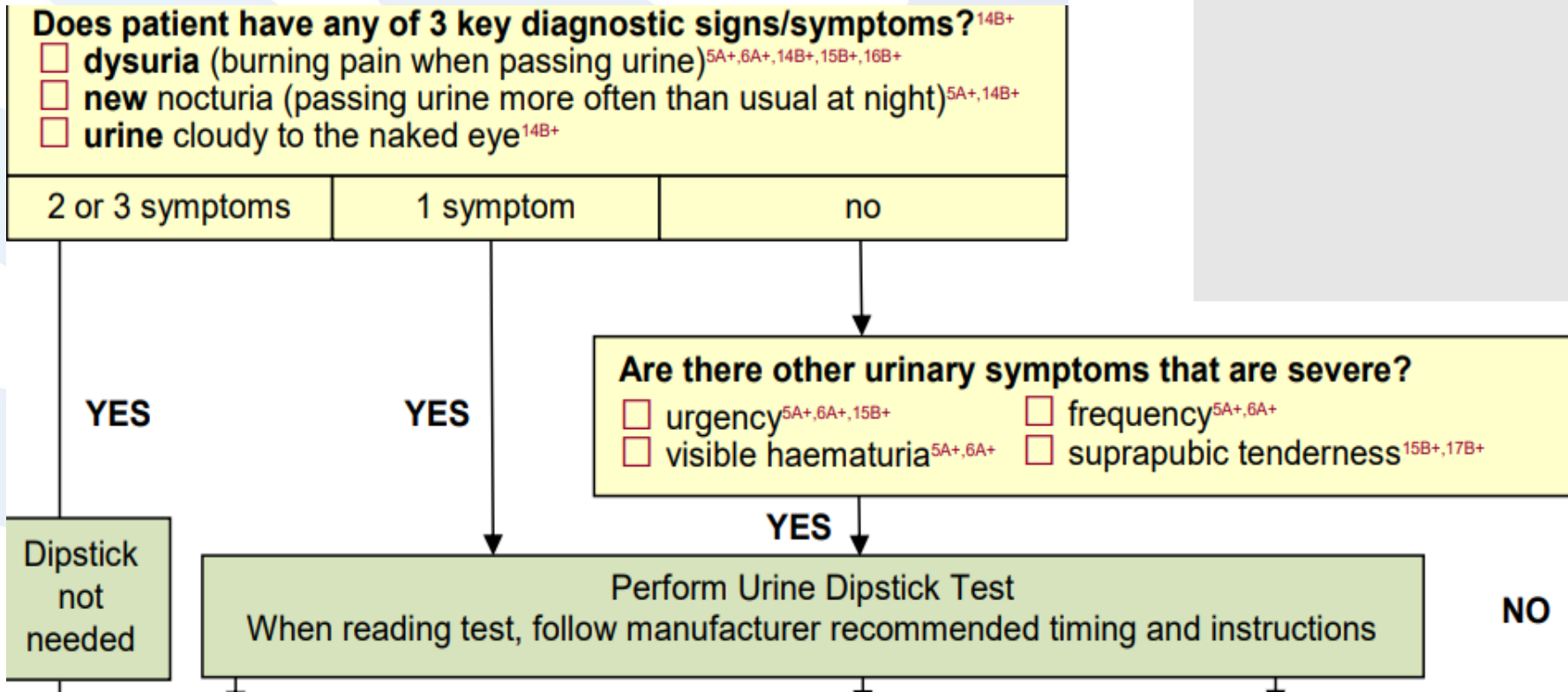
- > 65 years (greater than 65 years – men & women)
- Pregnant women
- Catheter Associated UTI
- Symptoms of upper UTI / pyelonephritis
- Recurrent UTI (2 episodes in 6mths or 3 episodes in 12mths)
- Failed treatment or non-response

Consider risk factors for resistance and send urine for culture if:

- Abnormalities of genitourinary tract
- Renal impairment
- Care home resident
- Hospitalisation for > 7 days in last 6mths (greater than 7 days)
- Recent travel to a country with increased resistance
- Previous UTI resistance (example ESBL , CPE)

When would a urine dip be useful?

In women under 65 years when symptoms are uncertain



[Urinary tract infection: diagnostic tools for primary care - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

When would a urine dip be useful?

Age of child	Urine Dip or C&S	Comments															
< 3 months	C&S	Refer to specialist															
3 months to 3 years	Urine dip then C&S if positive	If leukocyte esterase or nitrite, or both are positive: start antibiotic treatment; send a urine sample for culture.															
>3 years	Urine dip	Send for C&S if risk of serious infection. <table> <tr> <th>Leukocyte esterase</th><th>Nitrite</th><th>Action</th></tr> <tr> <td>+</td><td>+</td><td>Treat as UTI</td></tr> <tr> <td>-</td><td>+</td><td>Send C&S. Start Tx</td></tr> <tr> <td>+</td><td>-</td><td>Send C&S</td></tr> <tr> <td>-</td><td>-</td><td>UTI unlikely</td></tr> </table>	Leukocyte esterase	Nitrite	Action	+	+	Treat as UTI	-	+	Send C&S. Start Tx	+	-	Send C&S	-	-	UTI unlikely
Leukocyte esterase	Nitrite	Action															
+	+	Treat as UTI															
-	+	Send C&S. Start Tx															
+	-	Send C&S															
-	-	UTI unlikely															

[Urinary tract infection in under 16s: diagnosis and management](#)

[| Guidance | NICE](#)

Collecting a urine sample

- Patient information leaflet
- If urinalysis of urine is appropriate, follow IPC standard precautions
- Urinalysis should not be undertaken at clinical hand wash basins. It should be done in a dedicated dirty utility area or an allocated area within the clinical room if a dirty utility is not available
- Urine samples may be collected at any time of day
- Mid stream urine (MSU) is advised where feasible
- Samples must be sent to the lab in 20ml **red capped universal container** and ensure this is labelled correctly
- **Catheter samples of urine** must be taken by trained staff assessed and competent in aseptic technique

Screening tool

Box 1. Sepsis screen

Box 2. UTI symptoms

Box 3. Delirium review

Box 4. Symptoms of other infections

Name: _____ DOB: _____ NHS No: _____
Date completed: _____ Completed by: _____ **Healthy Wirral**

UTI / Infection Assessment tool for over 65 years for community setting
UTI suspected – complete assessment tool below [Tick where symptoms are present]
• DO NOT PERFORM URINE DIPSTICK IN Patients AGED OVER 65
• NEVER DIPSTICK URINE FROM ANY Patient WITH A CATHETER

Box 1. Could it be SEPSIS? Possible infection AND ONE of the following:

- ☐ ~~New~~ deterioration in consciousness level (GCS/ AVPU)/new confusion
- ☐ ~~Low~~ blood pressure: Systolic ≤ 90 mmHg (or ≥ 40 mmHg below normal)
- ☐ ~~Heart~~ rate ≥ 130 beats per minute
- ☐ Respiratory rate ≥ 25 per minute
- ☐ ~~Needs~~ oxygen to keep SpO2 92% (88% in COPD)
- ☐ ~~Non~~-blanching rash
- ☐ ~~Mottled~~ or ashen skin (blue/grey ~~colouring~~ of skin / lips / tongue)
- ☐ ~~Not~~ passed urine in last 18 hours
- ☐ Urine output less than 0.5 ml/kg/hr if ~~catheterised~~
- ☐ Recent chemotherapy (within last 6 weeks)

Action
Possible sepsis – assess for urgent treatment / admission to hospital
Measure and monitor early warning score (NEWS)

Box 2. Any new onset/worsening symptoms that suggest UTI?

Either
☐ Burning, pain or discomfort when passing urine (dysuria) ▲
or
☐ Tenderness in back, under ribs (kidney pain) (Possible upper UTI/~~exacerbated~~) ▲

Or if 2 or more symptoms below:

- ☐ Needing to pass urine much more often than usual or more urgently
- ☐ New or worsening urinary incontinence
- ☐ Visible blood in urine (macroscopic ~~haematuria~~)
- ☐ Pain in lower tummy or above pubic area
- ☐ Inappropriate shivering/chills OR temperature below ~~36~~ or above 37.9°C
- Record temperature here if taken: _____
- ☐ New or worsening confusion, ~~agitation~~ or delirium [complete box 3]

Action if UTI likely

- Do NOT dip urine
- Obtain MSU urine sample
- Treat for UTI
- Encourage fluids
- Obtain catheter sample and consider catheter change / removal by ANTT trained staff. **Community Nursing Service** contact number 0151 514 2222

Box 3. Check for other causes of delirium if relevant (PINCH ME)

- ☐ P: Pain
- ☐ I: other Infection
- ☐ N: poor Nutrition
- ☐ C: Constipation
- ☐ H: poor Hydration (check urine ~~colour~~ chart and look for signs)
- ☐ M: other Medication
- ☐ E: Environment change

Action
• Address causative problems
• Poor hydration identified – provide patient information leaflet and encourage hydration

Box 4. Check for symptoms of other infections - new or worsening- (Tick if present)

- ☐ ~~Respiratory~~: shortness of breath, cough/sputum, new chest pain
- ☐ ~~Gastrointestinal~~: nausea/vomiting, new abdominal pain/cramps, new onset ~~diarrhoea~~
- ☐ ~~Skin~~/soft tissue: new redness, warmth, swelling, pus.

Action
UTI unlikely – consider alternative diagnosis. Send samples for culture and sensitivity testing if appropriate

Hydration ~~colour~~ chart
Dark or smelly urine alone does not indicate infection. 1 to 3 is healthy.

1	2	3	4	5	6	7
Good	Good	Fair	Dehydrated	Dehydrated	Very Dehydrated	Severe dehydration

Version 3, July 2022. Review date: July 2025 Adapted from NHS Nottingham's and Bury CCC and Bury Council Assessment Tools

Why is hydration important?



Dehydration in older people causes:

- Urinary tract infections [UTI]
- Pressure ulcers
- Cognitive impairment
- Dizziness and falls
- Constipation

Check urine colour

- 1 to 3 is healthy wee
- 4 or more – need to drink more
- Very / severe dehydration – may need rehydration sachets or medical advice
- People should pass urine at least 4 times a day

1		Good
2		Good
3		Fair
4		Dehydrated
5		Dehydrated
6		Very dehydrated
7		Severe dehydration

Risk factors of dehydration

- Decreased / restricted mobility
- Difficulty handling cups / cutlery, unable to pour their own drinks
- Communication difficulties
- Decreased appetite
- Age over 75
- People taking certain medications
- Cognitive impairment / dementia / significant learning difficulties
- Urinary catheters

Recognising the signs of dehydration



- Dry mouth and lips, sunken eyes
- Fragile, dry skin
- Thirst
- Headache
- Tiredness
- Disorientation/confusion
- Low blood pressure
- Faster heart rate
- Passing small amounts of dark-coloured urine

Improving Hydration

How much Fluid?

Most people need 1500 to 2000ml of fluid daily to stay healthy

All fluids count, except alcohol!

Make every contact count

Some people may have fluid restrictions that require a careful balance of intake and output
e.g. kidney impairment

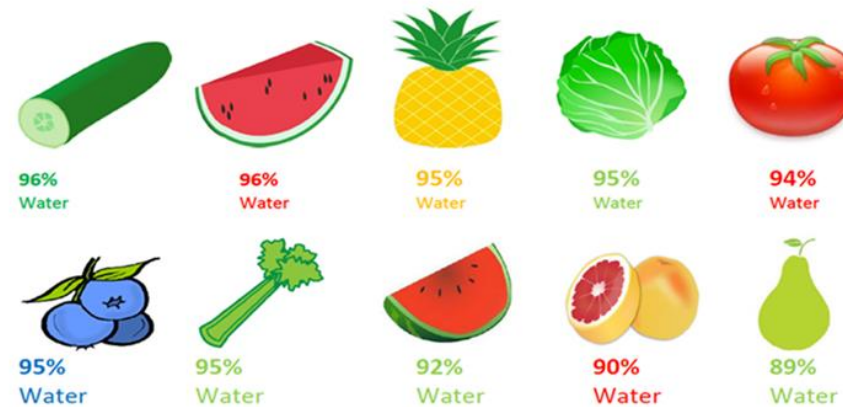
Household measures in ml



Improving Hydration

- Increasing choice of drinks
- Mouth care and hygiene
- Encourage an increase in fluids during summer months
- Promote fluid rich food such as yoghurts, ice cream, melon, and oranges
- Little and often

Top 10 Hydrating Fruits



Information leaflets

- Available on the IPC Digital Hub

[Infection Prevention and Control - Wirral Community Health and Care NHS Foundation Trust \(wchc.nhs.uk\)](#)

- Ensure they are available within your G.P surgery

**Wirral Community
NHS Foundation Trust**

Keeping hydrated

If you are following a fluid restriction for medical reasons then this leaflet is not for you.

What do we mean by hydration?

Water makes up over two thirds of the healthy human body. It is essential for lubricating the joints and eyes, aiding digestion, flushing out waste and toxins and keeping skin healthy.

Dehydration occurs when the normal water content of your body is reduced, upsetting the delicate balance of minerals (salts) and sugars in your body. Many of your body's cells depend on these minerals being maintained at the correct levels to function properly.

What are the symptoms of dehydration?

Symptoms of dehydration include:

- dark urine
- feeling thirsty
- light-headedness
- dizziness
- headaches and tiredness
- reduced alertness
- reduced ability to concentrate

Who is more at risk of dehydration?


Dehydration is generally caused by not drinking enough fluid or by losing fluid and not replacing it. People who have lost fluid through vomiting and diarrhoea, through sweating (for example, if you have a fever or through exercising) or through drinking too much alcohol are more at risk of dehydration.

How do you know if you are dehydrated?

A dry mouth may be the first sign that you are dehydrated. Also dizziness and headache may occur followed by the symptoms listed above.

Originator: Infection Prevention and Control

Continued overleaf...


[wirralct.nhs.uk](#) | [@nhsbuzz](#) | [@wirralct](#) | 

Keeping hydrated

What can you do to prevent or treat dehydration?

You should aim to drink around 1.5 - 2 litres (around 6 - 8 glasses) of fluid per day to stay hydrated. Sometimes drinking little and often may be easier.

Household measures in mls



All fluids count, except alcohol! Foods can also contribute to your daily fluid intake, for example melon, soups, stews, fruit and vegetables.

Do not wait until you feel thirsty to have a drink, thirst is often a late response to dehydration.

Finally, have a look at the colour chart below and see what your hydration status is. The colour of your urine (wee) can indicate dehydration:

1	Good	1, 2, 3 = Healthy wee
2	Good	
3	Fair	
4	Dehydrated	Over 4 = Drink more
5	Dehydrated	
6	Very dehydrated	
7	Severely dehydrated	

If you have any concerns, please contact your own GP or the Out of Hours Service on 111.

If you would like this information in another format, please contact the Your Experience Team on freephone 0800 694 5530. Alternatively you can email wcnt.yourexperience@nhs.net

For general enquiries please ring: 0151 514 2888

Email: wcnt.yourexperience@nhs.net

0037 April 2018 V1

Self help advice to prevent UTI



Options to help prevent a UTI

It may help you to consider these risk factors:

- **Stop bacteria spreading from your bowel into your bladder.** Wipe from front (vagina) to back (bottom) after using the toilet.
- **Avoid waiting to pass urine.** Pass urine as soon as you need to.
- Go for a **wee after having sex** to flush out any bacteria that may be near the opening to the urethra.
- **Wash** the external vagina area with water before and after sex to wash away any bacteria that may be near the opening to the urethra.
- **Drink** enough fluids to make sure you wee regularly throughout the day, especially during hot weather.

If you have a recurrent UTI, the following may help

- **Cranberry products and D-mannose:** There is some evidence to say that these work to help prevent recurrent UTI
- **After the menopause:** Topical hormonal treatment may help; for example, vaginal pessaries.
- Antibiotics at night or after sex may be considered

[Leaflets to discuss with patients:](#)
[How to use these leaflets](#)
(rcgp.org.uk)

[Urinary infection \(adult\) | The British Association of Urological Surgeons Limited](#) (baus.org.uk)

[Recurrent cystitis.pdf](#) (baus.org.uk)

Additional Training Resources



Video

- [Out of hospital management of UTIs in elderly patients - YouTube](#)

Training handbook:

- [tdontd-training-handbook.pdf \(midnottspathways.nhs.uk\)](#)

Think Kidney

- [AKI Home - Acute Kidney Injury \(thinkkidneys.nhs.uk\)](#)
- [Keeping Kidneys Safe - Know How Medicines Affect the Kidneys – YouTube](#)

UTI management/diagnosis

- [Urinary tract infection: diagnostic tools for primary care - GOV.UK \(www.gov.uk\)](#)

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(The link will be copied in to the chat)**