Position statements on the use of dipstick urinalysis to assess for evidence of urinary tract infection (UTI) in adults.

Diagnosis of a UTI should be based on a clinical assessment and presence of clinical signs and symptoms (refer to Box A). The use of dipstick urinalysis to assess for evidence of UTI is not recommended in many settings and is only recommended in limited circumstances, as outlined below.

Box A: Signs and Symptoms of UTI (list not exhaustive)

- ☐ Acute dysuria
- ☐ New/worsening frequency
- ☐ New/worsening urgency
- ☐ New onset incontinence
- ☐ Fever
- ☐ Suprapubic or costovertebral angle pain or tenderness
- ☐ Haematuria

1. **All persons aged 65 years and older:** The use of dipstick urinalysis in assessing for evidence of a UTI is not a useful guide to management and is **not recommended**.
2. **All persons with an indwelling urinary catheter:** The use of dipstick urinalysis in assessing for evidence of a UTI is not a useful guide to management and is **not recommended**.
3. **Male patients under 65 years old:** The use of dipstick urinalysis is of limited value as an aid to diagnosis and is **not recommended**. Diagnosis should always be confirmed by urine culture. Dipstick urinalysis may be helpful in some clinical situations to decide if a working diagnosis of UTI should be made. Whilst they are poor at ruling out infection in males, positive nitrite makes UTI more likely.
4. **Female (non-pregnant) patients under 65 years old:** Dipstick urinalysis may be useful as an aid to diagnosis when a UTI is suspected, based on the presenting signs and symptoms. To reduce false negative results, urine should be retained in the bladder for at least four hours before carrying out dipstick urinalysis. Interpretation of dipstick urinalysis in females <65 years:
   - Nitrite positive OR leukocyte PLUS red blood cells positive: UTI is likely
   - Leukocyte positive but nitrite negative: UTI equally likely to other diagnosis
   - All nitrite, leukocyte and blood negative: UTI less likely
5. **Pregnant females:** The use of dipstick urinalysis in assessing for evidence of a UTI is not a useful guide to management and is **not recommended**.
6. **Response to treatment:** Dipstick urinalysis has no role in assessing response to treatment of a UTI.
7. **Absence of signs and symptoms of a UTI:** The use of dipstick urinalysis to assess for evidence of a UTI is not useful and **should be avoided in people of all ages**. This includes those instances which are commonly reported to trigger dipstick urinalysis such as:
   - Foul smelling, dark or concentrated urine: In the absence of signs and symptoms of a UTI (Box A), this is suggestive of dehydration rather than of infection.
   - Altered mental status and behavioural changes (confusion, decreased appetite, decreased balance, falls, disorientation, wandering, and verbal aggression): In the absence of signs and symptoms of a UTI, these should not be readily attributed to a UTI. Consider other common causes (Box B below).

If the patient is haemodynamically stable and does not have typical UTI signs and symptoms, a medication review and evaluation of potential triggers is recommended. A period of observation for 24 hours with adequate hydration and attention to other triggers is usually appropriate.

Box B: Potential causes of delirium/decline in function [PINCH ME]:

P	Pain: Is the person in pain? Has urinary retention been excluded?
IN	Infection: Is there a possible infection? Consider sepsis
C	Constipation: When was the last bowel movement?
H	Hydration/Nutrition: is there major electrolyte imbalance? Have hypoxia, hypotension, hypoglycaemia been considered?
M	Medication: omission of regular medication, addition of new medication or adverse effects of existing medication (see Box C)
E	Environment: change of environment, noise or activity levels impacting sleep/rest

Box C: Medications to consider reviewing:

- ☐ Hypnotics including benzodiazepines
- ☐ Gabapentinoids
- ☐ Opioids including tramadol, and patches
- ☐ Anticholinergics such as amitriptyline, chlorphenamine, tolterodine, oxybutynin, paroxetine, procyclidine, promethazine, chlorpromazine.

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Rationale:

- Inappropriate use of dipsticks can lead to unnecessary antibiotic prescribing which does not benefit the patient and may cause considerable harm including adverse effects, drug interactions and antimicrobial resistance.
- Asymptomatic bacteriuria (ASB) is the presence of bacteria in the urine without symptoms of a UTI. ASB can be present at any age but is particularly common in those aged over 65 years and is very common in people with an indwelling urinary catheter. In ASB, results from a dipstick urinalysis, laboratory urinalysis or culture will most likely identify the presence of leucocytes/ white cells/ pyuria (the host response to the presence of bacteria), nitrites (a chemical produced by Gram-negative bacteria) and the bacteria itself. The result can be difficult to interpret in the absence of clinical assessment and may lead to incorrect diagnosis of UTI and unnecessary antibiotic use, when in fact it is ASB.
- The incidence of ASB amongst those aged 65 years and older has been reported to be up 50% for those resident in the community, and up to 70% for those resident in long-term care facilities. The incidence of catheter-associated ASB is reported as 100% when urinary catheters are in place for >30 days.
- ASB is not harmful. There is some evidence of a small increase in risk of UTI in those with ASB but there is no evidence that antibiotic treatment reduces this risk and antibiotic use can be associated with harm and with a shift to colonisation with more antibiotic-resistant bacteria. Exceptions where benefit has been demonstrated for antibiotic treatment for ASB are in pregnancy and prior to a urological procedure causing mucosal trauma. In pregnancy, dipstick testing is not sufficient for the detection of ASB and urine culture is the gold standard.
- Urine culture and sensitivity can be of value in guiding treatment particularly in patients with complex infection but is not necessary in most cases of simple cystitis in non-pregnant women. Urine cultures should ideally be performed in the following situations: suspected pyelonephritis; complicated UTI; suspected urosepsis or sepsis of unknown origin; pregnant women; abnormal urinary tract; planned urological procedure; history of antibiotic resistance; recurrent UTI; suspected UTI in males.

References:

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