



UTI Investigation: Best Practice

Background

There has been evidence of increasing numbers of urine samples arriving at the respective laboratories over the past couple of years, particularly in the Waikato region, but also in the Bay of Plenty. This increase is likely to be above what would be expected from the increase in population, suggesting that in some areas the threshold for sending urine samples may have fallen slightly.

The purpose of this clinical update is therefore to remind laboratory users of best practice with regards to urine sampling.

Complicated v Uncomplicated UTIs

A lot of urine samples still arrive into the laboratory for what appear to be “uncomplicated” UTIs.

It is generally well accepted that urine culture is not necessary for most cases of uncomplicated UTI (<http://www.bpac.org.nz/Supplement/2006/July/uti.aspx>) and that empirical treatment for these patients is acceptable practice. This is usually with either a short course of trimethoprim or nitrofurantoin. (<http://www.bpac.org.nz/Supplement/2013/July/antibiotics-guide.aspx>)

UTIs defined as “complicated”, and therefore requiring culture, comprise the following groups:

- **Men**
- **Children**
- **Suspected Pyelonephritis (flank pain, fever)**
- **Persistent symptoms despite treatment**
- **Pregnant Women**
- **Recent Urinary Tract Instrumentation**
- **Catheterised Patient (where confusion, fever, or hypotension present)**
- **Structural abnormality of the Urinary Tract.**
- **Renal Impairment**
- **Immunocompromised**

The remainder are defined as “uncomplicated”, and evidence shows that taking urinary cultures in the uncomplicated cohort has little or no bearing on the outcome.

Clinical Details

Clinical details are often fairly sparse on request forms that accompany urine samples. I believe it is insufficient just to quote “?UTI” on the request form. By indicating what “complicated” group your patient falls into shows that the culture is indicated, and in some cases influences the processing of the sample, including the antimicrobial susceptibilities that are tested and released.

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Catheter Specimens of Urine (CSU)

The urine of all patients who have a urinary catheter in situ will eventually become colonised with bacteria. CSU specimens should not be taken in patients who are asymptomatic. CSU culture is only indicated when the patient shows evidence of **systemic infection**; i.e. fever, increased confusion, hypotension, decreased level of consciousness. Note that **cloudy urine or smelly urine** in the otherwise asymptomatic patient is **not** an indication to take a CSU culture. If this scenario arises, changing the urinary catheter often resolves the problem.

Role of Dipstick Urinalysis

The role of urine dipstick urinalysis in triaging patients for laboratory investigation is still unclear.

“Uncomplicated UTI suspected.” It may be reassuring to confirm the presence of pyuria before starting empirical treatment for an uncomplicated UTI. However there is some evidence to suggest that even women with dysuria and negative dipstick analysis have improvement in their symptoms following antibiotics¹.

“Complicated UTI suspected.” For those patients with suspected UTIs that fall into the “complicated” category, a negative dipstick urinalysis makes the diagnosis of infection unlikely. However if there is a strong clinical suspicion of infection, then a urine sample should still be sent to the laboratory for full analysis, regardless of the dipstick urinalysis result.

Follow-Up/Post-Treatment Urines

This is a significant cause of unnecessary urine testing. Follow-up testing is **not required** in most patients that are asymptomatic after treatment for a UTI. The goal is clinical cure, not microbiological cure. It is reasonable to consider sending a urine to the lab for processing if clinical symptoms are persisting despite antibiotic treatment. Pregnant women should have a repeat urine culture two weeks after treatment for asymptomatic bacteruria or UTI.

Urine Culture as a Screening Tool for Vague or Non-Specific Symptoms

This is another common reason for sending urines unnecessarily to the laboratory. Such symptoms might include chronic fatigue, changes in bowel habit, poor appetite, weight loss etc. Whilst a few of these patients will have a UTI, a negative urinary dipstick analysis should have strong negative predictive value in excluding UTI in this cohort.

References

Richards D et al; Response to antibiotics of women with symptoms of urinary tract infection but negative dipstick urine test results **BMJ, Jul 2005; 331: 143**
<http://www.bmj.com/content/bmj/331/7509/143.full.pdf>

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