

A simple way to improve the reliability of urine MC&S results

What are the causes of false negative, false positive or mixed growth MC&S results?

When patients present with symptoms of a urinary tract infection it is best practice to refer a sample of their urine for MC&S testing to identify a causative organism and ensure an effective antibiotic is prescribed.

In order to identify the specific organism causing an infection it is important that the specimen cultured accurately reflects the bacteria present in the urine at the time of collection. In most cases, true infection will also demonstrate an identifiable increase in the microscopic white cell count carried out on the sample.

Unfortunately, in some cases the microscopy and culture result proves unhelpful returning findings of mixed growth without an identifiable increase in white cells. These results may mask a true infection and are most probably the consequence of issues such as:

- an overgrowth of contaminant bacteria introduced during sample collection
- an overgrowth of contaminant bacteria due to delay in transportation of the sample to the laboratory
- degradation of white cells due to delay in processing leading to an underestimate of their numbers

How can false negative, false positive and mixed growth MC&S results be minimised?

Improved reliability can be achieved simply by changing the MC&S sample collection container.

Heath Services Laboratories' comparisons have demonstrated significant reductions in false negative, false positive and mixed growth results if urine samples for MC&S are collected in red-topped sample tubes containing boric acid preservative.

The change to boric acid containers for urine MC&S is recommended by UKAS (UK laboratory accreditation body) and most laboratories have converted, or are in the process of converting to using them.



Are any changes to the collection instructions required?

A couple of important things to note when using red-topped boric acid containers:

1. do not discard the powder in the container, this is the boric acid preservative
2. to ensure the correct boric acid preservative concentration please ensure containers are filled to the line indicated on the side of the container
3. cap the tube tightly and invert several times to mix the preservative and the sample

Can urinary dipsticks be used on urine samples collected in red-topped tubes?

No, dipstick testing is not recommended for samples collected into red-topped boric acid preservative tubes.

The use of dipsticks is becoming less common in general practice however, if dipstick testing is required, the sample should be collected in a white top universal tube or in a sterile bowl and decanted in to a red top tube after dip stick testing.

Can all urine tests be referred in the red-topped tubes?

No, the red-topped tubes containing the boric acid powder preservative should be used **exclusively** for routine urine MC&S samples.

If other tests such as biochemistry, molecular diagnostics (e.g. chlamydia PCR) or pregnancy confirmation are required, please submit another urine sample collected into a white topped universal container.

Small volume urine samples e.g. paediatric samples should also be collected in white-topped tubes.

Red-Topped Urine Container Supplies

The red-topped boric acid containers can be ordered via the same route as the traditional universal containers.

Boric acid containers have a shelf life of five years so ample containers may be stored to ensure supplies are always available when required.