



**INTEGRATED PATHOLOGY SERVICE
MICROBIOLOGY DOCUMENT
WEST SUSSEX**

**Pathology User Manual
Microbiology Investigations
Urine**

[PD-MIC-UMUrine]

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DATE OF ISSUE:	25/01/2024
DATE EFFECTIVE FROM:	25/01/2024
VERSION NO:	5
REVIEW DUE:	25/01/2026
COPY:	1
LOCATION OF COPIES:	1 Electronic – Q-Pulse

Urine

The Microbiology department uses boric acid containers for all routine urines for microscopy and bacteriological culture. These have a small amount of white powder and have a red top. **Please note that these are NOT suitable for Chemistry investigations.** The microbiology laboratory will only process requests for microscopy, culture and sensitivity on urines that are received in boric acid containers. Samples received in non-boric acid containers (e.g. white-topped universals) will be rejected (unless from paediatric in/out-patients).

Diagnosis of urinary tract infections Quick reference tool for primary care for consultation and local adaptation [Diagnosis of urinary tract infections - quick reference tool for primary care \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/671111/Urinary-tract-infections-quick-reference-tool-for-primary-care.pdf)

Urine (MSU) for microscopy, culture and sensitivity (MC&S)

MSU is the recommended collection method – see also ***Clinical skills for collecting an MSU***

Prior to collection, the genital area should be cleaned with tap water. Antiseptics should not be used. If the area is soiled, use soap and water and rinse thoroughly.

Men: Retract prepuce and wash the glans penis

Women: Clean the vulva, first the outer labia then the inner (clean from front to back). Separate the labia while the specimen is passed.

Discard the initial part of the urine sample. Collect middle portion of the stream into a clean (preferably sterile) vessel. Then pour the appropriate volume into the boric acid container.

Catheter urine (CSU)

See also ***Clinical skills for collecting a CSU***

Specimens should be obtained by aspiration with a sterile needle and syringe from the self-sealing sleeve in the drainage tube. If necessary the tube should be clamped below the level of the sleeve to allow urine to collect. Clean sleeve with spirit then insert needle at 45 degree angle (never collect samples from the drainage bag). Place sample in a boric acid container.

Urine containers for microbiological analysis

The boric acid specimen containers are only suitable for microbiological analysis and are designed to prevent bacterial growth and preserve cellular constituents during transit.

Collect the MSU as described above – do not discard the white powder and fill the boric acid container to the line marked and mix well. This will ensure the correct concentration of preservative.

Specimens should be transported to the laboratory as soon as possible.

- Boric acid preserved urine specimens may be stored at room temperature prior to processing
- Boric acid preserved urine specimens need not be placed in a refrigerator
- Please note: - do not use boric acid specimen containers for purposes other than the microbiological analysis of urine. They are not suitable for:
 - Dipstick tests on urine
 - Urine investigations for TB
 - Urine for pregnancy tests

A limited number of white-topped standard 60 mL specimen containers are available for other microbiological specimens (e.g. pus, fluid, sputum) but these will not be issued for microbiology urine samples.

Limitations of examination procedure

- Boric acid preservative at a concentration of 1-2% holds the bacterial population steady for 48-96 hours, and other cellular components remain intact.
- The incorrect volume of urine added to the Boric acid specimen container may adversely impact the effectiveness of the preservative properties of Boric acid.
- Relevant clinical information, including recent/current antimicrobial therapy will aid the correct diagnosis of urinary tract infection.
- Pyuria without apparent bacteriuria (i.e. no growth on routine culture media) may be the result of many factors; as a result of prior treatment with antimicrobial agents; catheterisation; calculi (stones); bladder neoplasms; genital tract infection; sexually transmitted diseases (e.g. *C.trachomatis*), or an infection with a fastidious organism.
- Bacteriuria without apparent pyuria may be due to the lysis of the White Blood Cells in alkaline urine, which occurs in infection with *Proteus* sp.
- Renal tuberculosis may also be implicated in sterile pyuria but is uncommon, although should be considered if clinically indicated (e.g. in high risk populations).

Urine for Schistosomiasis / Bilharziasis (3-hour collection)

A patient information leaflet is available on the Trust Intranet.

Optimal time and Method of collection

Void urine at 11am and discard. Thereafter collect all urine passed until 2 p.m. Empty bladder at 2p.m. and add to collection. Send to lab. specifically requesting microscopy for schistosomiasis. (Only useful for *S. haematobium*). Place sample into a plain container (no preservative); available from Microbiology. Alternatively; a terminal urine sample may be sent. The lab should receive the specimen on the day of collection; or if impossible it should be kept cool and dark and delivered the next day at the latest.

Limitations of examination procedure

- Improper collection of the sample may lead to false negative results. It is therefore essential that the patient has correctly followed the instructions for urine collection for this investigation.
- Delays in transport of the specimen to the laboratory may result in deterioration of the ova.

Urine for Legionella

Legionella antigen

Urine specimens are collected in sterile universal (with or without boric acid), stored at room temperature (15-30°C) and assayed within 24 hours of collection.

Limitations of examination procedure

- The *Legionella* Urinary Antigen Test has been validated using urine samples only. Other samples (e.g. plasma, serum, or other body fluids) that may contain *Legionella* antigen have not been evaluated. The test cannot be used on environmental samples (i.e. potable water).
- This test will not detect infections caused by other *L.pneumophila* serogroups and by other *Legionella* species. A negative antigen result does not exclude infection with *L.pneumophila* serogroup 1. Culture is recommended for suspected pneumonia to detect causative agents other than *L.pneumophila* serogroup 1 and to recover *L.pneumophila* serogroup 1 when antigen is not detected in urine.
- Excretion of *Legionella* antigen in urine may vary depending on the individual patient. Antigen excretion may begin as early as 3 days after onset of symptoms and persist for up to 1 year afterwards. A positive *Legionella* Urinary Antigen Test result can occur due to current or past infection and therefore is not definitive for infection without other supporting evidence.
- The *Legionella* Urinary Antigen Test has been evaluated on hospitalised patients only. An outpatient population has not been tested.