Top 10 Takeaways on Urinalysis tests for Clinical Microbiology Laboratories

EUROPEAN FEDERATION OF CLINICAL CHEMISTRY AND LABORATORY MEDICINE

EFLM European Urinalysis Guideline 2023

No.	Takeaways	Guideline Section
1	**Clinical needs** Do not investigate asymptomatic bacteriuria (except in pregnancy). Use the ACSS questionnaire without any laboratory testing for women with uncomplicated sporadic lower urinary tract infections. No control cultures are recommended when a patient with a lower UTI ceases to have symptoms after antimicrobial treatment.Most routine patients with symptoms possibly related to UTI need a urine bacterial culture → See Figure 2 of the EFLM Guideline below.	7.1.1 7.1.1
2	**Patient instructions for mid-stream urine collection** Patients must be actively involved in the decision-making of their diagnostics, including empowerment to get the best possible quality for their specimens. Instructions with illustrations and educational videos are recommended to support patient counselling.	2.1.1
3	**Specimen collection** Documentation of urgency (bladder incubation) and time of voiding, and possible antimicrobial treatment help in interpretation of urine culture results. A quality indicator <15% polymicrobial growth at 10^4 CFU/mL is introduced for laboratories. Low urine density creates false negative results.	3.2
4	**Rapid tests for bacteriuria and leukocyturia** Multiple strip tests (leukocyte or nitrite test) allow detection of UTI at a sensitivity of about 70% against 10^4 CFU/mL in culture (risk of false negative results). Automated particle analysis of WBC and bacteria needs a sensitivity of 95% to rule out bacteriuria. The diagnostic limit of leukocyturia is about 20 WBC x10^6/L.	7.1.1

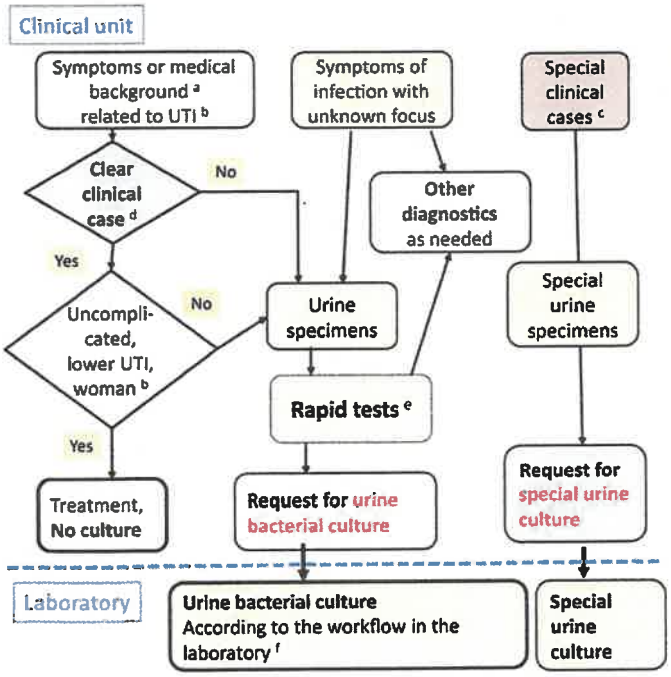


Figure 2 of the EFLM Guideline

Examination of urine when a urinary tract infection is suspected. The figure divides the activities in a clinical unit and in a laboratory.

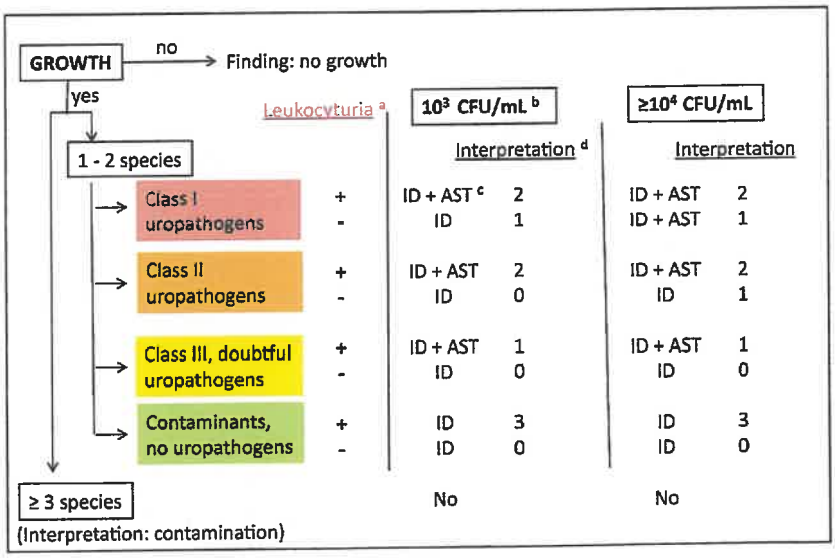
SCAN ME

Scan the **reference citation** of the EFLM European Urinalysis Guideline 2023 in Clin Chem Lab Med 2024; 62(9): 1653–1786; https://doi.org/10.1515/cclm-2024-0070

No.	Takeaways	Guideline Sections
5	**Procedure for manual urine culture** Chromogenic agar is strongly recommended as primary agar medium to identify *E. coli* (most frequent uropathogen) easily, quickly, and inexpensively. A second agar (such as blood agar) is recommended in clinically defined cases and for fastidious organisms. Bacteria and yeast detected from urine specimens need to be identified to the species level to satisfy proper clinical diagnostics, and antimicrobial susceptibility. Bacterial identification using Matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) is strongly recommended for medium-sized and large laboratories (>100 specimens/day).	7.4.1 7.6 7.3.3
6	**Routine workflow in urine cultures** A flowchart for routine urine specimens is recommended as a practical advice to bacteriology laboratories to organize their workflows. It is open for modifications based on specific specimens or patient populations, as well as local epidemiology of uropathogens → See Figure 8 of the EFLM Guideline below.	7.5.2
7	**Emerging pathogens** New species *Aerococcus* spp and *Actinotignum schaalii* and *Corynebacterium urealyticum* are proposed for the list of class II uropathogens if detected in monomicrobial culture.	7.2.3
8	**Antimicrobial susceptibility testing** This guideline recommends documents of the European Committee on Antimicrobial Susceptibility Testing (EUCAST) for procedures of antimicrobial susceptibility testing (AST).	7.7
9	**Verification of routine cultures with the reference procedure** The suggested practical procedures or tools for verification of routine bacterial examinations aim to help in the assessment of various changes in routine workflows. The level of satisfactory assessment is case-dependent. It needs to focus on critical diagnostic steps, and must be judged against relevant references, including the ISO 15189:2022 standard.	7.8
10	**Automation in bacteriology** Laboratory automation in the bacteriology laboratory is feasible and helps in the elimination of repetitive manual tasks, reduces patient identification errors and turnaround time, and improves standardization and reproducibility of culture.	7.4.3

Figure 8 of the EFLM Guideline

General workflow of primary bacterial cultures from routine urine specimens.



SCAN ME

Scan the **citation** of the EFLM European Urinalysis Guideline 2023 in Clin Chem Lab Med 2024; 62(9): 1653–1786; https://doi.org/10.1515/cclm-2024-0070