

**P2153 The importance of diagnosing Gram-negative/Gram-positive bacteria in urine in the pre-culture screening of urinary tract infections in the microbiology laboratory by fluorescence flow cytometry on the UF-4000 urine analyser (Sysmex) for early initiation of targeted antibiotic therapy**

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**Background:** Urinary tract infections (UTIs) are one of the most common infections that clinicians encounter in both outpatients and hospitalized patients. Early initiation of treatment is very important, as is the choice of antibiotics. Mostly wide-spectrum antibiotics are administered. In terms of antibiotic policy, this has an undesirable impact on the overall increase in antibiotic resistance in the individual patient as well as in the entire hospital ward or region. Early detection of UTI presence and determination of whether it is a gram-positive or gram-negative etiological agent in pre-culture screening are therefore very beneficial. Thus, the aim of the study was to evaluate the sensitivity and specificity of the UF-4000 urine analyser (Sysmex®) to distinguish gram-positive and gram-negative bacteria in pre-culture screenings of UTIs in a microbiology laboratory using fluorescence flow cytometry (FFC).

**Materials/methods:** In our study, 1090 fresh urine samples were collected. These samples were simultaneously run on the UF-4000 and inoculated onto blood agar and MacConkey agar plates and incubated at 37°C from 18 to 24 hours. Results were then compared with respect to the Gram± flag presence generated by the analyser

**Results:** For detecting gram-positive bacteria in urine, the sensitivity of the method is 78% and the specificity 96%. For gram-negative bacteria in urine, the sensitivity of the method is 89% and the specificity is also 89%.

**Conclusions:** The FFC method to detect the presence of gram-negative or gram-positive bacteria in urine already has demonstrated a high degree of sensitivity and specificity in the pre-culture screening of urinary infections in a microbiology laboratory and is of benefit to the patient for its role in early initiation of antibiotic UTI therapy targeting gram-positive or gram-negative bacteria.