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Impact of the filling of the Urine Monovette on the results of the urinalysis

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Background: The pre-analytical phase of urinalysis is crucial in the diagnosis of urinary tract infections. Thus, the use of transport systems containing boric acid is interesting for limiting the impact of contamination in urine samples. However, the transport system that we use (Monovette® Urine, SARSTEDT) requires filling between 9 and 10 mL, and the impact of non-compliance with tube filling has never been assessed. The aim of this study is to measure the impact of the filling of Monovette® Urine on the results of the urinalysis.

Material/methods: We studied 33 urine samples representative of clinical microbiology situations, in terms of leukocyturia (<20 to> 1000 / mm³), hematuria (<25 to> 1000 / mm³) and bacteriuria (from <1 to > 1000 / mm³). Each urine was distributed in Monovette® Urine using an increasing volume (4 mL, 5 mL, 6 mL, 7 mL, 8 mL, 9 mL and 10 mL). The impact of urine volume on leukocytes, erythrocytes and bacteria counts was evaluated on the UF-500i (BioMérieux), and its impact on the bacteriuria was assessed after inoculation with 10 µL urine on chromogenic medium URISelect 4 (BIORAD) and incubation for 24 hours at 37°C.

Results: The results obtained over the whole range of urine volumes show that there is no significant change (<10%) in the various parameters tested on the UF500i (count of leucocytes, erythrocytes and bacteria) and bacteriuria evaluated by cultures.

Conclusions: This work shows that there is no impact of the filling of Monovette® Urine on the results of the urinalysis, both on the parameters tested on the UF-500i cytometer or on cultures. This study allows us to minimize the pre-analytical nonconformities related to the filling of transport system.