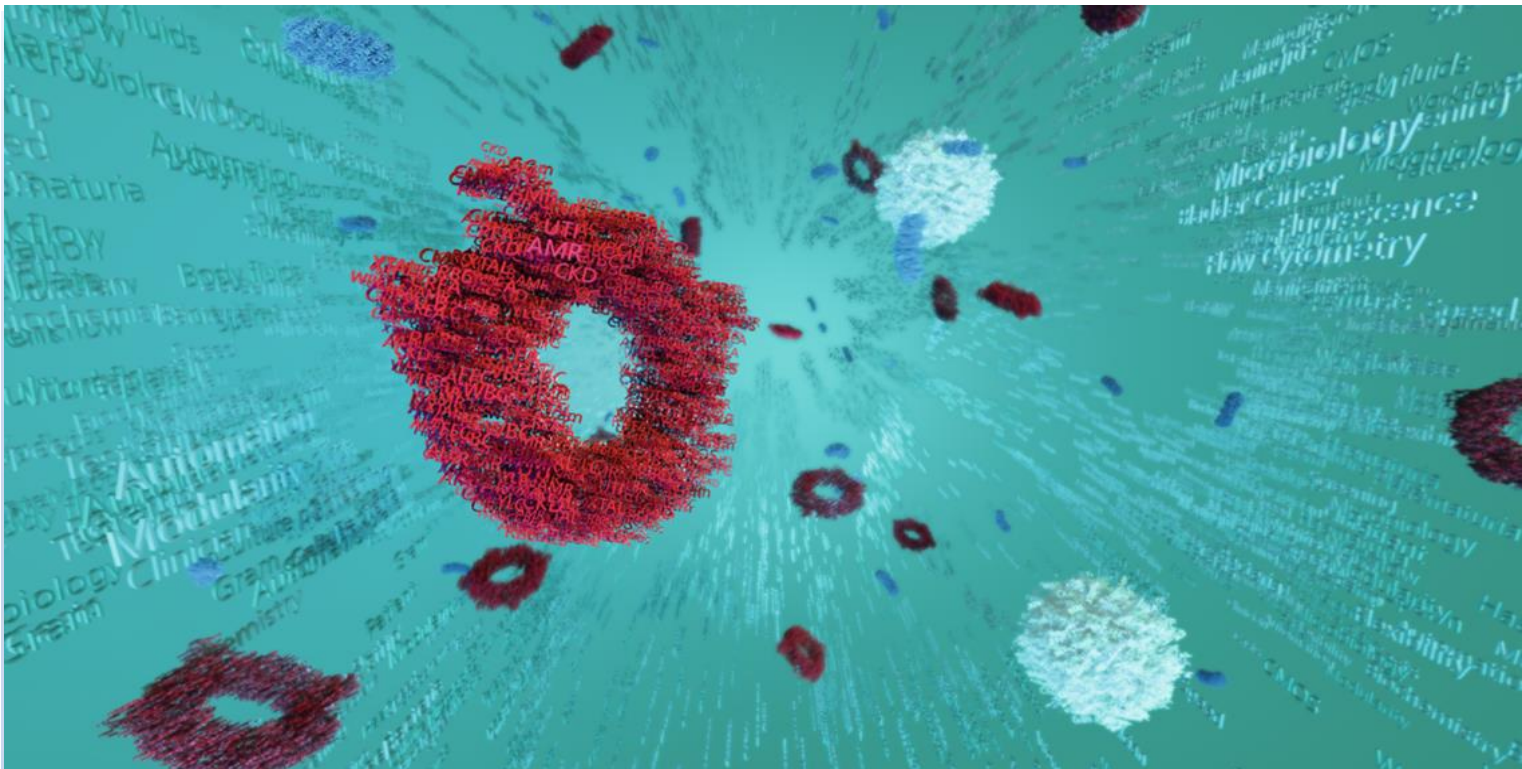# Literature list – Urinalysis

Customer information

Date: 21 August 2023

Subject: Literature list – Urinalysis

Issued by: Dr. Benjamin Schoenbeck

Number: LIT_UN_08/2023

Note: Whether references are given in British or American English depends on the original.

NEW	New entries are highlighted by this icon.
OA	Entries with open access.

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2

1   General / Review

NEW

Debunne *et al.* (2023):

Urine transfer devices may impact urinary particle results: a pre-analytical study. Clin Chem Lab Med oap

https://pubmed.ncbi.nlm.nih.gov/37340894/

> What we see as the essence: In this study, the group of Prof. Delanghe investigated the effect of different urine collection methods and the associated urine transfer tubes on urine test strip and particle results. Three different transfer tubes (BD, Greiner, Sarstedt vacuum and Sarstedt aspiration) were used, in comparison to direct measurement on the UF-5000 and UC-3500 analysers. Whereas there were no significant differences found in the test strip results, transfer of urine samples to the secondary tubes affected their particle counts. Clinically significant reductions in counts of renal tubular epithelial cells and hyaline casts were observed using the BD and Greiner transfer tubes and in counts of pathological casts using the BD, Greiner and Sarstedt vacuum tubes. The results of this study indicate that the use of urine transfer tubes may impact counts of fragile urine particles. Clinical laboratories need to be aware about the variation that urine collection methods can induce on urine particle counts.
>
> #PreAnalytics #TransferTube #Stability #UC3500 #UF5000

OA

Antimicrobial Resistance Collaborators (2022):

Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. Lancet 399:629-655

https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902724-0

> What we see as the essence: Antimicrobial resistance (AMR) poses a major threat to human health around the world. Previous publications have estimated the effect of AMR on incidence, deaths, hospital length of stay, and health-care costs for specific pathogen–drug combinations in select locations. To our knowledge, this study presents the most comprehensive estimates of AMR burden to date.
>
> #AMR #GlobalBurden #Status2019

OA

Oyaert M *et al.* (2022):

Improving clinical performance of urine sediment analysis by implementation of intelligent verification criteria. Clin Chem Lab Med, oap

https://pubmed.ncbi.nlm.nih.gov/36069776/

> What we see as the essence: In this study, urinary diagnostic data, obtained from urinary test strip analysis on the UC-3500 and urinary flow cytometry on the UF-5000 are combined with intelligent verification criteria, aiming to evaluate improvements in diagnostic performance in context of combination of diagnostic data. In summary, the implementation of intelligent verification and review rules improved the diagnostic performance of urinary flow cytometry.
>
> #IntelligentReviewCriteria #UC3500 #UF5000

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3

OA **Oyaert M and Delanghe JR (2019):**

Progress in Automated Urinalysis. Ann Lab Med 39(2):15-22.

https://www.ncbi.nlm.nih.gov/pubmed/30215225

What we see as the essence: This publication is a comprehensive review of the current status of automated urinalysis, highlighting the potential quantitative reading of urinary test strips using CMOS technology for albuminuria testing and the value of urinary flow cytometry for the differentiation of urinary microorganisms, screening for urinary tract infections and clinical decision support in a variety of nephrological and urological diseases. In addition, progress in automated urinary microscopy and the improved pathogen identification by MALDI-TOF mass spectrometry is reflected and an outlook into future technologies, such as laboratory-on-a-chip approaches, use of microfluids and mobile applications is given.

#AutomatedUrinalysis #AutomatedMicroscopy #FCM #TestStrip #UTI #LabOnAChip #Microfluidics

2 Performance Evaluation / Comparison

NEW

Yis O M *et al.* (2022):

Performance Evaluation of Urine Osmolality Measurement on Sysmex UF-5000 and the Effect of Molecules and Particles in Urine. Clin Lab 69(3).

https://pubmed.ncbi.nlm.nih.gov/36912295/

What we see as the essence: This study evaluated the analytical performance of osmolality measurement of the UF-5000, to examine the effect of different molecules and particles in the urine on the osmolality measurement. Considering the good accessibility of the automated routine complete urine analyser, UF-5000 can be considered to determine whether urine osmolality is within reference or should be measured by methods based on colligative properties. Thus, referral of patients to a clinic that uses the colligative measurement method may be used more effectively.

#Osmolality #UF5000

OA

Demirel OU *et al.* (2022):

Comparison of Sysmex UF-5000 flow cytometer and Fuchs-Rosenthal chamber urine sediment analysis. Medicine Science 11(1):367-371

http://www.medicinescience.org/wp-content/uploads/2022/03/367-371-53-1642749918-MS-2022-01-015-1.pdf

What we see as the essence: This study evaluated the diagnostic performance of urine sediment analysis performance of the Sysmex UF-5000 flow cytometer with the manual Fuchs-Rosenthal counting chamber. In summary, flow cytometry urinalysis is a promising area compared to the manual reference method. Urinalysis automation reduces TAT, laboratory workloads and workforce and the need for microscopic review.

#FlowCytometry #Urinalysis #Performance #FuchsRosenthal

OA

Yang *et al.* (2021):

A performance comparison of the fully automated urine particle analyzer UF-5000 with UF-1000i and Gram staining in predicting bacterial growth patterns in women with uncomplicated urinary tract infections. BMC Urol 21:24

https://bmcurol.biomedcentral.com/track/pdf/10.1186/s12894-021-00791-x.pdf

What we see as the essence: This study aims to compare the performance of the new UF-5000 and the UF-1000i and Gram staining for determining bacterial patterns in urine samples. Mid-stream urine samples of women with symptoms suggestive of urinary tract infection were collected for gram staining, urine analysis and urine cultures. Bacterial patterns were classified using the UF-1000i, the UF-5000 and Gram staining. The collected data revealed a sensitivity/specificity of the UF-1000i of 81.8/91.1% for gram-negative rods and 23.5/96.9% for cocci/mixed. The sensitivity/specificity of the UF-5000 was 80.0/88.2% for gram negative rods and 70.0/86.5% for gram-positive cocci. In conclusions, the UF-5000 demonstrated good sensitivity and specificity for Gram-negative bacilli and demonstrated an improved sensitivity for detecting Gram-positive cocci compared with the UF-1000i.

#UTI #uUTI #UF5000 #UF1000i #GramStaining #BACTinfo

Enko D *et al.* (2020):

Comparison of the diagnostic performance of two automated urine sediment analyzers with manual phase-contrast microscopy. Clin Chem Lab Med 58(2):268-273 [Online version from 2019].

https://www.ncbi.nlm.nih.gov/pubmed/31605578

What we see as the essence: Enko and colleagues demonstrate that the analytical performance of the UF-5000 is in strong concordance with manual phase-contrast microscopy and clearly outperforming the Roche cobas® u 701 module. This study included a broad spectrum of urine sediment pathologies, thereby proving the UF-5000 to be a reliable tool for automated urine sediment analysis in daily clinical practice.

#AutomatedUrinalysis #Microscopy #UrineSediment #UF5000 #cobsa701

Kucukgergin C *et al.* (2019):

Performance of automated urine analyzers using flow cytometric and digital image-based technology in routine urinalysis. Scand J Clin Lab Invest. 79(7):468-474.

https://www.ncbi.nlm.nih.gov/pubmed/31460810

What we see as the essence: This study evaluates the analytical performances of the UF-5000 and the Dirui FUS-200, to manual microscopy. Thereby, all available urinalysis aspects and sediment results were investigated within one hour after sample collection. Accurate results have been obtained from both analytical systems, the FUS-200 and the UF-5000, as good linearity without carry-over has been shown. Overall, the UF-5000 demonstrated better agreement in classification of WBCs, RBCs, ECs, positively affecting the morphologic recognition and enumeration of cells.

#AutomatedUrinalysis #UF5000 #FUS-200 #AnalyticalPerformance #UrineMicroscopy

Cho J *et al.* (2019):

Comparison of five automated urine sediment analyzers with manual microscopy for accurate identification of urine sediment. Clin Chem Lab Med 57(11):1744-1753.

https://www.ncbi.nlm.nih.gov/pubmed/31280239

What we see as the essence: This study evaluated the analytical and diagnostic performance of the Sysmex UF-5000, the Roche cobas® u 701 module, the URiSCAN PlusScope and the Iris iQ200SPRINT and the SIEMENS UAS800 in comparison to manual microscopy. Each automated urine sediment analyzer has certain distinct features, in addition to the common advantages of reducing the burden of manual processing. Therefore, laboratory physicians are encouraged to understand these features, and to utilize each system in appropriate ways, considering clinical algorithms and laboratory workflow.

#AutomatedUrineSedimentAnalyzer #UF5000 #Cobas701 #iQ200SPRINT #UAS800 #PlusScope

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OA **Bakan E *et al.* (2018):**

Evaluation of the analytical performances of Cobas 6500 and Sysmex UN-Series automated urinalysis systems with manual microscopic particle counting. Biochem Med (Zagreb) 28(2):020712.

https://www.ncbi.nlm.nih.gov/pubmed/30022887

What we see as the essence: This study compared the diagnostic performance of the UF-5000 and the Roche cobas® u 701 module to manual microscopy. Comparing the quantification of WBCs and RBCs, the UF-5000 obtained the better sensitivities and specificities and showed high agreement with manual microscopy. In conclusion, the UF-5000 is a reliable tool for urine sediment analysis, but pathological samples should be confirmed by microscopy.

#AutomatedUrinalysis #UF5000 #ManualMicroscopy #Urinalysis #cobas701

OA **Previtali G *et al.* (2017):**

Performance evaluation of the new fully automated urine particle analyser UF-5000 compared to the reference method of the Fuchs-Rosenthal chamber. Clin Chim Acta 472:123-130.

https://www.ncbi.nlm.nih.gov/pubmed/28760666

What we see as the essence: Previtali and colleagues evaluated the analytical performance of the Sysmex UF-5000 for urine sediment samples compared manual particle counting using the Fuchs-Rosenthal chamber. The study demonstrated high linearity performances for RBCs, WBCs and epithelial cells, as well as high negative predictive values and good sensitivities and specificities for all parameters, especially those of clinical relevance. The authors conclude a high potential of the UF-5000 and its fluorescence flow cytometry technology to investigate urine sediment particles related to pathological conditions of the kidneys and the urinary tract.

#AutomatedUrineAnalysis #FuchsRosenthalChamber #UF5000 #UrineParticles

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7

3 Biochemistry

OA

Nah *et al.* (2021):

Screening of Chronic Kidney Disease in Primary Health: Comparison of the Urine Dipstick Albumin-to-Creatinine Ratio and Dipstick Proteinuria. Annals of Public Health Reports 5(1):152-159

https://scholars.direct/Articles/public-health/aphr-5-031.pdf

What we see as the essence: The aim of this study was to compare test strip ACR with proteinuria for CKD screening in a primary healthcare setting. This cross-sectional study included 88,479 specimens with ACR and proteinuria was measured on the UC-3500 automated urine test strip analyser. In conclusion, the CKD risk category using test strip proteinuria was underestimated compared to the ACR-based CKD risk category, suggesting a recommendation of the use of test strip ACR for CKD screening in primary healthcare settings.

#PrimaryCare #Urinalysis #UC3500 #CKD #TestStrip #ACR #CKDscreening

OA

Currin *et al.* (2021):

Diagnostic accuracy of semiquantitative point of care urine albumin to creatinine ratio and urine dipstick analysis in a primary care resource limited setting in South Africa. BMC Nephrology 22:103

https://bmcnephrol.biomedcentral.com/articles/10.1186/s12882-021-02290-5

What we see as the essence: This study evaluated the diagnostic accuracy of the semi-quantitative albumin-creatinine ratio (ACR) measurement on the UC-1000 at the point of care by determining the sensitivity, specificity, positive predictive value, and negative predictive value of the ACR. The prevalence of albuminuria in the study cohort was 11.6% and accompanied by underlying diseases such as diabetes and hypertension. The performance showed of the ACR measurement showed a sensitivity of 0.79, a specificity of 0.84, a positive predictive value of 0.39 and a negative predictive value 0.97. The sensitivity improved, if including additional information, such as underlying diseases and age. In summary, the study demonstrated a good NPV for ACR at the point of care, offering the potential for frequent screening of risk group patients and reliable rule-out of albuminuria.

#PointOfCare #Urinalysis #UC1000 #CKD #Albuminuria #ACR #RiskGroupScreening

Salinas *et al.* (2019):

Urinary albumin strip assay as a screening test to replace quantitative technology in certain conditions. Clin Chem Lab Med 57(2):204-209

https://pubmed.ncbi.nlm.nih.gov/30024851/

What we see as the essence: This study aims to evaluate the diagnostic performances of a test strip for measuring ACR for differentiating patients who are candidates for subsequent albumin quantification, and to evaluate the economic effects of its implementation. In conclusion, the detection of albumin and the albumin:creatinine ratio (ACR) is a suitable screening strip test to identify pathological albuminuria for further confirmation through quantitative methods. The performance of the test strip and its workflow benefits do not only foster economic savings, but also elucidates the potential for frequently screening of risk group patients.

#TestStrip #Urinalysis #UC3500 #CKD #Screening

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OA

Oyaert M and Delanghe JR (2019):

Semiquantitative, fully automated urine test strip analysis. J Clin Lab Anal 33(5):e22870.

https://www.ncbi.nlm.nih.gov/pubmed/30803042

What we see as the essence: This study evaluated the analytical and diagnostic performance of the UC-3500 for the presence of glucose, protein, albumin, leukocyte esterase, and hemoglobin peroxidase activity and ordinal scale results in comparison to the analysis of urine sediments using the UF-5000 as well as in comparison to wet clinical chemistry using the Roche cobas® 8000. Especially for detection of glycosuria, proteinuria and albuminuria, a perfect agreement between the reflectance data of the UC-3500 and immunochemistry results has been obtained. This allows the UC-3500 to provide a high-throughput first-level screening method for urinalysis which acts as a reliable sieving system to reduce the workload for further validation methods.

#Dipstick #FullyAutomatedUrineAnalyzer #TestStrip #Urinalysis #UrineChemistryAnalysis #UC3500

Oyaert M *et al.* (2018):

Quantitative urine test strip reading for leukocyte esterase and hemoglobin peroxidase. Clin Chem Lab Med 56(7):1126-1132.

https://www.ncbi.nlm.nih.gov/pubmed/29427551

What we see as the essence: This study investigates diagnostic accuracy of the Sysmex UC-3500 automated urine chemistry analyzer based that uses CMOS sensor technology for leukocyte esterase and hemoglobin peroxidase results. In addition, the influence of urinary dilution, haptoglobin, urinary pH and ascorbic acid on the test results has been assessed. In conclusion, CMOS technology allows to obtain high quality test strip results for assessing WBC and RBC in urine. Quantitative peroxidase and leukocyte esterase are complementary with flow cytometry and have an added value in urinalysis, which may form a basis for expert system development.

#HemoglobinPeroxidase #LeukocyteEsterase #UrineSedimentAnalysis #UrineTestStripAnalysis

Delanghe JR *et al.* (2017):

Sensitive albuminuria analysis using dye-binding based test strips. Clin Chim Acta 471:107-112.

https://www.ncbi.nlm.nih.gov/pubmed/28554541

What we see as the essence: Delanghe and colleagues investigated the potential of the CMOS sensor technology of the UC-3500 for obtaining quantitative albuminuria results in comparison to clinical wet chemistry using the cobas® 8000 immunochemistry analyser. For albumin, this study revealed a limit of detection of 5.5 mg/l, respecting limits for screening for albuminuria in patients at risk of CKD. A strong or good correlation between strip reflectance data and albuminuria creatinine, respectively, potentially allows quantification of albuminuria and ACR by dye-binding test strip.

#Albuminuria #ChronicKidneyDisease #Diabetesmellitus # ReflectanceData #TestStrips

4   Nephrology

OA

Cho H Y *et al.* (2022):

Diagnostic Characterisation of Urinary Red Blood Cell Distribution Incorporated in UF-5000 for Differentiation of Glomerular and Non-Glomerular Hematuria. Ann Lab Med 42(2):160-168.

https://pubmed.ncbi.nlm.nih.gov/34635609/

What we see as the essence: This study evaluated the potential of the UC-3500/UF-5000 to screen for *Lupus nephritis*, a common glomerular disease. The investigation revealed an excellent agreement for the accuracy for assessing the protein-to-creatinine ratio by the UC-3500, if compared to clinical chemistry and good agreement for the detection and quantification of RTECs by the UF-5000, if compared to manual microscopy. RTECs have been shown to be significantly elevated in *Lupus nephritis* patients. The data highlight a good screening capability for increased protein-to creatinine ratios (specificity of 97.5 % and an a PPV of 96.46 %) or elevated RTEC and protein-to-creatinine ratios (specificity of 97.5 % and an a PPV of 94.03 %). Sensitivity (95.97 %) and NPV (96.24 %) were highest in case only one parameter was positive. In conclusion, the UN-2000 (UC-3500 and UF-5000) can be used to screen for *Lupus nephritis*.

#LupusNephritis #UF5000 #RTEC 'UC3500 #PCR

OA

Chen Y *et al.* (2022):

Sysmex UN2000 detection of protein/creatinine ratio and of renal tubular epithelial cells can be used for screening lupus nephritis. BMC Nephrology 23:328

https://pubmed.ncbi.nlm.nih.gov/36199035/

What we see as the essence: This study evaluated the potential of the UC-3500/UF-5000 to screen for *Lupus nephritis*, a common glomerular disease. The investigation revealed an excellent agreement for the accuracy for assessing the protein-to-creatinine ratio by the UC-3500, if compared to clinical chemistry and good agreement for the detection and quantification of RTECs by the UF-5000, if compared to manual microscopy. RTECs have been shown to be significantly elevated in *Lupus nephritis* patients. The data highlight a good screening capability for increased protein-to creatinine ratios (specificity of 97.5 % and an a PPV of 96.46 %) or elevated RTEC and protein-to-creatinine ratios (specificity of 97.5 % and an a PPV of 94.03 %). Sensitivity (95.97 %) and NPV (96.24 %) were highest in case only one parameter was positive. In conclusion, the UN-2000 (UC-3500 and UF-5000) can be used to screen for *Lupus nephritis*.

#LupusNephritis #UF5000 #RTEC 'UC3500 #PCR

Mizuno G *et al*. (2021):

Evaluation of red blood cell parameters provided by the UF-5000 urine auto-analyzer in patients with glomerulonephritis. Clin Chem Lab Med 59(9):1547–1553

https://pubmed.ncbi.nlm.nih.gov/33908221/

What we see as the essence: This study investigates the potential the UF-5000 for interpretation of morphological information of glomerular RBC by using the UF-5000 RBC-related parameters small RBC (UF-%sRBC) and Lysed-RBC in context of glomerulonephritis in comparison to time-consuming and labour-intensive microscopic examination of haematuria. The data indicate that the UF-%sRBC and Lysed-RBC values differed significantly between glomerulonephritis and non-glomerulonephritis cohorts. Cut-off values have been defined for UF-%sRBC as >56.8% (AUC = 0.649; SE = 94.1%; SP = 38.1%; PPV = 68.3%; NPV = 82.1%) and for Lysed-RBC as >4.6/µL (AUC = 0.708; SE = 82.4%; SP = 56.0%; PPV = 72,6%z, NPV = 69.1%). In conclusion, the applied cut-off values for the UF-5000 RBC parameters UF-%sRBC and Lysed-RBC demonstrated sufficient diagnostic performance to support the diagnosis of glomerulonephritis.

#Glomerulonephritis #SmallRBC #LysedRBC #UF5000

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5   Microbiology & Antimicrobial Resistance (AMR)

NEW

Chen Y *et al.* (2023):

Combination of UC-3500 and UF-5000 as a quick and effective method to exclude bacterial urinary tract infection. J Infect Chemother 29(7):667-672.

https://pubmed.ncbi.nlm.nih.gov/36921761/

> What we see as the essence: This study evaluated the performance of the combination of the UC-3500 and the UF-5000 in screening for bacterial urinary tract infection (UTI). Applying cut-off values of 32.20/µL (male) and 39.15/µL (female) for WBC as well as 22.35/µL (male) and 127.25/µL (female) for BACT allowed effective determination of urinary tract infections. The combiation of WBC, BACT and LEU in a joint screening programs were identified as suitable approach to rapidly and effectively exclude bacterial UTI.
>
> #UTI #UF5000 #BACT #WBC #UC3500 #NIT #LEU

NEW

OA

Wang H *et al.* (2023):

Accuracy of the Sysmex UF-5000 analyzer for urinary tract infection screening and pathogen classification. PLoS One 18(2):e0281118.

https://pubmed.ncbi.nlm.nih.gov/36724192/

> What we see as the essence: This study aimed to investigate the screening performance of the UF-5000 for UTI and the BACT Info flag for discrimination of Gram-positive and Gram-negative pathogens. The decision curve showed that urinary bacteria had a higher predictive benefit than WBC with a sensitivity and specificity of the decision tree were 0.69 and 0.95, respectively. The flag of Gram-negative had a positive predictive value (PPV) of 0.93 in patients with urine bacteria > 1367 /µl. In conclusion, urine bacteria determined by the UF-5000 had higher screening performance and greater benefit than WBC. A decision tree can be used to improve the screening performance of routine urinary parameters. The flag of Gram-negative is a reliable indicator to confirm gram-negative bacteria infection in UTI patients.
>
> #UTI #UF5000 #BACT #NIT #WBC #BACTinfo

NEW

OA

Yanılmaz Ö & İlki AA (2023):

Performance of Sysmex UF-5000 for candiduria screening. New Microbiologica 45(4):292-295

https://pubmed.ncbi.nlm.nih.gov/36538292/

> What we see as the essence: This study evaluated the performance of the UF-5000 for the assessment of candidurias to detect or exclude fungal infections by applying the yeast-like cell (YLC) parameter. If compared to *Candida* culture, the use of a cut-off of 5 YLC/µl resulted in an excellent diagnostic performance with 100 % sensitivity, 95 % specificity a negative predictive value of 100 % and a positive predictive value of 66 %. In conclusion, the performance of the YLC parameter allows the exclusion of candidurias with positive impact on laboratory workflows and antimicrobial stewardship.
>
> #UTI #UF5000 #Candiduria #YLC

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NEW

Kim S H *et al.* (2022):

Clinical Usefulness of BACT Count and BACT-Info Flag of UF-5000 for Screening for Urinary Tract Infection and Prediction of Gram-Negative Bacteria. Clin Lab 68(12).

https://pubmed.ncbi.nlm.nih.gov/36546738/

> What we see as the essence: In need of a rapid and reliable screening test for (UTI), helping to reduce the turn-around time and to rule out negative results of urine culture, this study assessed the performance of the BACT count and the BACT-Info flag of the UF-5000. The authors recommend the use of a combination of BACT count (685.3/µL) and BACT-Info for UTI assessment, which appeared to be more appropriate for Gram-negative bacteria, and could support the selection of selecting empirical treatment.
>
> #UTI #UF5000 #BACT #BACTinfo

OA

Szmulik M *et al.* (2022):

A novel approach to screening and managing the urinary tract infections suspected sample in the general human population. Front Cell Infect Microbiol 12:936854.

https://pubmed.ncbi.nlm.nih.gov/36093203/

> What we see as the essence: This study evaluated the performance of laboratory indicators of UTI on digital imaging (Iris iQ®200 ELITE) and fluorescence flow cytometry (UF-5000) urinalysis instruments, as well as by dip stick testing. For the prediction of urine culture results for UTI, based on WBC and/or BACT, a good diagnostic performance has been observed with a sensitivity of 100 % and a specificity of 83.7 %, resulting in a negative predictive value of 100 % and a s positive predictive value of 75 %. This outcome further highlights the capabilities of the UF-series to rule-out UTIs and to positively improve laboratory workflows in context of UTI.
>
> #UTI #UF5000

OA

Chun TTS *et al.* (2022):

The diagnostic value of rapid urine test platform UF-5000 for suspected urinary tract infection at the emergency department. Front Cell Infect. Microbiol. 12:936854

https://pubmed.ncbi.nlm.nih.gov/36237433/

> What we see as the essence: This study evaluated the diagnostic utility of the UF-5000 for the prediction of UTIs at the emergency department in comparison to dipstick and urine culture. The results of this study highlight the capability of the UF-5000 to predict negative urine culture and to support the laboratory UTI diagnostic pathway, thereby clearly outperforming dip stick assessment with improved predictive values. In addition, the performance of the 'BACT Info' flag, especially for Gram negatives with a concordance of 96.2 %, if compared to urine culture might support clinical decisions.
>
> #UTI #UF5000 #BACT #DipStick

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OA

Torres-Sangiao E *et al.* (2022):

Direct Urine Resistance Detection Using VITEK 2. Antibiotics 11(5):663

https://pubmed.ncbi.nlm.nih.gov/35625307/

What we see as the essence: This study evaluated the combination of different diagnostic technologies including urine flow cytometry, MALDI-TOF mass spectrometry and automated antibiotic susceptibility testing to reduce the time for reporting UTI-positive samples and proposing a suitable antibiotic susceptibility profile. The aim is to allow fast and precise treatment, thereby minimising the risk for antimicrobial resistance. In this context, the UF-5000 was used to select samples, suspected to be positive for UTI, here BACT counts ≥ 150 cells/mL and the 'Gram Negative?' flag were used. After confirmation by MALDI-TOF mass spectrometry, samples positive for *E. coli* were subjected to AST on VITEK 2. In summary, this study proposes a combination of diagnostic techniques to foster a rapid diagnosis of UTI without the need for long-lasting urine cultures.

#UTI #AMR #UF5000 #MALDITOF #VITEK #RapidDiagnostics

OA

Christy P *et al.* (2022):

Comparison of Laboratory Diagnosis of Urinary Tract Infections Based on Leukocyte and Bacterial Parameters Using Standardized Microscopic and Flow Cytometry Methods. Int J Nephrol: eCollection 2022

https://pubmed.ncbi.nlm.nih.gov/35669495/

What we see as the essence: This study evaluated a reduction of laboratory turn-around-time for suspected urinary tract infections using the UF-5000 urinary flow cytometry using bacteria and leucocyte counts in comparison to the Shih-Yung microscopy method. In conclusion, urinary flow cytometry showed a very good performance in detecting acquired symptomatic UTIs and a high agreement with culture results.

#UTI #UF5000 #RapidDiagnostics

OA

Haugum K *et al.* (2021):

Use of Sysmex UF-5000 flow cytometry in rapid diagnosis of urinary tract infection and the importance of validating carryover rates against bacterial count cut-off. J Med Microbiol 70(12):001472

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8744275/pdf/jmm-70-1472.pdf

What we see as the essence: This study aimed to evaluate urine flow cytometry as a rapid screening method to rule out bacteriuria and thus urinary tract infections, including analyses of cross-contamination and sample-to-sample carryover rate. A bacterial count cut-off of 30 BACT/ml resulted in 95.2% sensitivity and 91.2% negative predictive value, resulting in approximately 30% of urine samples that could be reported as negative without culture. Use of high-level rinse modes was necessary to ensure carryover rates <0.05 %. In conclusion, flow cytometry is a suitable and rapid method to rule out urine samples without significant bacterial growth. Rinses between samples should be adjusted, depending on the cut-off used, to prevent sample-to-sample carryover, whereas cross-contamination can be eliminated using separate urine aliquots for flow cytometry analysis and urine culturing respectively.

#UTI #UF5000 #Workflow #Hospital

OA

Alenkaer LK *et al.* (2021):

Evaluation of the Sysmex UF-5000 fluorescence flow cytometer as a screening platform for ruling out urinary tract infections in elderly patients presenting at the Emergency Department. Scand J Clin Lab Invest 81(5):379-384

https://pubmed.ncbi.nlm.nih.gov/34237238/

What we see as the essence: This study evaluated the potential of the UF-5000 to rule-out UTI in elderly patients. Using a patient group-specific cut-off value of 10^8 CBU/L an NPV of 0.92 has been achieved, allowing to rule-out clinically irrelevant cases, potentially saving up to 36% of ordered urine. Due to the quick availability of results, compared to urine culture, the UF-5000 also offers the possibility to better guide the prescription of antibiotics

#UTI #UF5000 #Workflow #ElderlyPatients

OA

Ippoliti R *et al.* (2020):

UF-5000 flow cytometer: A new technology to support microbiologists' interpretation of suspected urinary tract infections. Microbiologyopen 9(3):e987.

https://pubmed.ncbi.nlm.nih.gov/31908145/

What we see as the essence: This case study aimed to describe the adoption of UF-5000 in context of the microbiology diagnostic pathways to investigate suspected urinary tract infections (UTIs). In conclusion, the UF-5000 can provide information improve the identification of both contamination and colonization, thus reducing inappropriate antibiotic prescriptions. An implementation of this technology thus allows the supply of sustainable treatments by hospitals, especially in context of the reduction of unnecessary use of antibiotics in false-positive results, obtained by reference methods.

#UTI #UF5000 #Workflow #AMR

OA

Gilboe HM *et al.* (2021):

Rapid diagnosis and reduced workload for urinary tract infection using flowcytometry combined with direct antibiotic susceptibility testing. PLoS ONE 16(7):e0254064.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0254064

What we see as the essence: This study evaluated the potential impact of urinary flowcytometry of the UF-5000 on the rapid identification of culture negative and contaminated samples prior to culture plating and on the prediction of positive samples for antibiotic susceptibility testing. Using a cut-off value with bacterial count ≥100.000/mL and WBCs ≥10/μL, urinary flow cytometry predicted 42,1% of samples with non-significant growth and for 52/56 positive samples containing Gram negative bacteria dAST was identical to routine testing. Overall, there was concordance in 555/560 tested antibiotic combinations. In conclusion, flow cytometry offers allows improvements in UTI diagnostics by reduction of the response times and workloads for negative samples on the day of arrival and by prediction of Gram-negative samples for antibiotic susceptibility testing, allowing a same day report of antibiotic susceptibility profiles.

#AST #UTI #UF5000 #Workflow #BACTinfo #Gram #AMR

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OA

Mancini S *et al.* (2020):

Evaluation of standardized automated rapid antimicrobial susceptibility testing of Enterobacterales-containing blood cultures: a proof-of-principle study. J Antimicrob Chemother 75(11):3218-3229

https://academic.oup.com/jac/article/75/11/3218/5885055

What we see as the essence: In this study, the preparation of standardized bacterial inocula for *Enterobacterales*-containing clinical blood cultures and the automated assessment of data of a rapid antimicrobial susceptibility testing (RAST) is reported, aiming to accelerate antibiotic therapy decisions. The UF-4000 was used to enumerate bacteria to adjust the inocula to 10^6 cfu/mL. Disc diffusion plates were automatically streaked, incubated for 6, 8 and 18 h and imaged automatically. In conclusion, with the standardized and automated RAST method, consistent AST data from blood cultures containing *Enterobacterales* can be generated after 6–8 h of incubation and subsequently confirmed by standard reading of the same plate after 18 h.

#AST #RapidAntibioticSusceptibilityTesting #UF4000 #AMR

Oyaert M *et al.* (2020):

Renal Tubular Epithelial Cells Add Value in the Diagnosis of Upper Urinary Tract Pathology. Clin Chem Lab Med 58(4):597-604.

https://www.ncbi.nlm.nih.gov/pubmed/31860463

What we see as the essence: Oyaert and colleagues evaluated the analytical performance characteristics of renal tubular epithelial cells (RTECs) and transitional epithelial cells (TECs) on the Sysmex UF-5000 urine sediment analyser, as well as the diagnostic performance of these parameters to differentiate between lower and upper UTI. In comparison to transitional epithelial cells (TEC), increased urinary levels of renal tubular epithelial cells (RTEC) demonstrated a good potential to serve as a marker for the diagnosis of upper UTI and outperforms α_1-micrglobulin in the discrimination between upper and lower UTI. However, the diagnostic performance of these parameters is strongly depending on proper sample handling.

#AutomatedUrinarySedimentAnalyser #UF5000 #RTECs #UTI #UpperUTI

OA

Wagner K *et al.* (2019):

Evaluation of the AID AmpC line probe assay for molecular detection of AmpC *Enterobacterales*. J Glob Antimicrob Resist 19:8-13.

https://www.ncbi.nlm.nih.gov/pubmed/31051288

What we see as the essence: This study investigated the use of commercially AID AmpC line probe assays for analysis of antibiotic resistance by detection of plasmid-mediated bla_{AmpC} β-lactamase genes in *Enterobacterales*, which proofed to be an accurate, sensitive and easy-to-use test that can be readily implemented in any diagnostic laboratory. In this context, the UF-5000 has been demonstrated to be a reliable tool to judge samples, sent for molecular testing, for the presence of bacteriuria and to reduce the number of unnecessary molecular testing.

#Microbiology #MolecularTesting #AntibioticResistance #AmpC #UF5000 #PreScreening

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OA

Öğüş E *et al.* (2019):

Compatibility of the Results of an Automated Urine Analyzer with Urine Culture. ASMS 3(6):88-92.

https://www.actascientific.com/ASMS/pdf/ASMS-03-0297.pdf

What we see as the essence: This study evaluated the incidence of leukocyte esterase and nitrite positivity, leukocyte and bacterial counts in urine and Gram positive and negative bacterial results interpreted by the UF-5000 for compliance with urine culture results. Incorrect results for the Gram status in comparison to urine culture was obtained for three Gram-positive and three Gram-negative samples. Rates of leucocyte esterase, nitrite positivity, leukocyte and bacterial counts were higher in Gram negative group. In conclusion, especially Gram-negative bacterial interpretation obtained from the UF-5000 be beneficial for rapid typing of bacteria and early treatment in urinary tract infections.

#UF5000 #UTI #UrineCulture #BacterialDiscrimination #GramNegative #Dipstick

OA

De Rosa R *et al.* (2018):

Evaluation of the new Sysmex UF-5000 fluorescence flow cytometry analyser for ruling out bacterial urinary tract infection and for prediction of Gram-negative bacteria in urine cultures. Clin Chim Acta 484:171-178.

https://www.ncbi.nlm.nih.gov/pubmed/29803898

What we see as the essence: De Rosa and colleagues investigated the potential of the UF-5000 to rule-out urinary tract infections and its ability to predict the presence of Gram-negative bacteria in urine samples with a request for urine culture in context of a suspected urinary tract infection. With neglectable carry-over and cross-contamination, the UF-5000 demonstrated a high screening performance for urinary tract infections with a high sensitivity and NPV for the bacteria using a cut-off of ≥58/µl. The 'Gran Neg?' flag predicted Gram negative urine cultures with good sensitivity and high specificity. In conclusion, the UF-5000 represents a reliable tool for ruling-out urinary tract infections with high diagnostic accuracy and offers the possibility to detect Gram-negative bacteria in very high agreement with urine culture. Further investigations might reveal the potential for the Gram information for targeted antibiotic.

#Bacteriuria #UTIScreening #FCM #UF5000 #Urinalysis #UrineCulture #GramNegative

OA

Kim SY *et al.* (2018):

Rapid Screening of Urinary Tract Infection and Discrimination of Gram-Positive and Gram-Negative Bacteria by Automated Flow Cytometric Analysis Using Sysmex UF-5000. J Clin Microbiol 56(8):e02004.

https://www.ncbi.nlm.nih.gov/pubmed/29769277

What we see as the essence: Kim and colleagues evaluated the performance of the UF-5000 in context of UTI screening, aiming to reduce unnecessary urine culture and improve the determination of antibiotic treatments. The performance to discriminate Gram-negative bacteria was superior to that for Gram-positive bacteria with high sensitivity and specificity in ≥10^5 CFU/ml monobacterial samples. In conclusion, the UF-5000 demonstrated a potential utility for the rapid screening of negative bacterial cultures, depending on the respective patient population, requiring cut-off optimization.

#UF5000 #BacterialDiscrimination #GramPositive #GramNegative #FCM #UTI #UrineCulture

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OA

Duyeal Song *et al.* (2018)

Selection of Unnecessary Urine Culture Specimens Using Sysmex UF-5000 Urine Flow Cytometer. Ann Clin Microbiol 21(4):75-79.

https://doi.org/10.5145/ACM.2018.21.4.75

What we see as the essence: This study investigated the potential of the UF-5000 to support the reduction of unnecessary urine cultures by ruling-out bacterial and fungal urinary tract infections. Applying urinalysis cut-off values of 50/µl and 100/l for bacteria and YLC, respectively, 84 out of 126 requested urine cultures were negative and could have been ruled-out by the UF-5000. In conclusion, the bacteria and yeast-like cell counts delivered by the UF-5000 could be used to predict negative cultures and reduce the load of urine cultures by around 10% without sacrificing positive cultures.

#UF5000 #UTI #Screening #UrineCulture #Bacteriuria #Yeast

OA

Kawamura K *et al.* (2017):

Evaluation of automated urine particle analyzer, UF-5000, as a screening tool to identify Gram stainability of urinal pathogens. Jap J Med Technol 66(5):516-523 [Article in Japanese].

https://www.jstage.jst.go.jp/article/jamt/66/5/66_17-9/_article/-char/en

What we see as the essence: Kawamura and colleagues evaluated the performance of the UF-5000 with regards to the provision on information on the Gram status of bacterial cells via the BACT-info flag in comparison to conventional methods including Gram staining and quantitative bacterial culture. In summary, the UF-5000 presented in 83.2 % of UTI cases a Gram information, in line with classical Gram staining. The UF-5000 exhibited a high positive predictive value (93.3%) for both Gram negative staining and culture results. Thus, the UF-5000 using BACT-info shows great promise in screening for UTI pathogens and further improvements of judgement algorithms might make the Gram judgement even more reliable.

#UF5000 #UTI #UrineCulture #BacterialDiscrimination #GramNegative #Dipstick

Geerts N *et al.* (2016):

Cut-off values to rule out urinary tract infection should be gender-specific. Clin Chim Acta 452:173–176.

https://www.ncbi.nlm.nih.gov/pubmed/26616731

What we see as the essence: This study investigated the potential of urine flow cytometry of the UF-5000 to rule-out urinary tract infections and to reduce the load of urine culture samples. Applying cut-off value of >200 bacteria/µl, a sensitivity of 93.0%, a specificity of 63.5% and an NPV of 96.2% has been obtained. As a result, the culturing of 49% of all samples could be avoided. In addition, the data was retrospectively analyzed to determine if the introduction of gender-specific cut-off values could improve screening results. The obtained receiver operator curves are indeed significantly different when gender specific cut-offs were used. When an NPV of 95% is considered acceptable the unisex cut-off value of >200bacteria/µl can be used for women (NPV 94.9%), but the cut-off value for men could be raised to >400bacteria/µl without diminishing the NPV (NPV 95.0%).

#CutOffValues #GenderSpecific #UF5000 #UTI #Screening #UrineCulture

6 Bladder Cancer

NEW

OA

Shukuya K *et al.* (2023):

Comparison of the clinical performance of the Atyp.C parameter of the UF-5000 fully automated urine particle analyzer with that of microscopic urine sediment analysis. Practical Laboratory Medicine 23:e00328.

https://www.sciencedirect.com/science/article/pii/S2352551723000227

What we see as the essence: This study shows that a combination of UF-5000 analysis and microscopic examination of urine sediment improves Atyp.C detection in urine sediment analysis. These results suggest that Atyp.C measured by UF-5000 could be a useful parameter in routine testing of urine samples.

#UFseries #AtypicalCells #BladderCancer #Surveillance

NEW

Karaburun M *et al.* (2023):

Investigation of Atypical Cell Parameter in the Surveillance of Patients with NMIBC; Initial Outcomes of a Single Center Prospective Study. J Med Syst 47(1):41.

https://pubmed.ncbi.nlm.nih.gov/36976368/

What we see as the essence: In this prospective study, the Atyp.C parameter demonstrated a potential use in the surveillance of NMIBC patients, showing significantly different values in malignant and non-malignant individuals, as well as between those with high- and low-grade recurrence.

#UFseries #AtypicalCells #BladderCancer #Surveillance

OA

Aydin O (2021)

Atypical cells parameter in Sysmex UN automated urine analyzer: feedback from the field. Turk J Biochem; Diagnostic Pathology 16:9

https://diagnosticpathology.biomedcentral.com/track/pdf/10.1186/s13000-021-01068-5.pdf

What we see as the essence: This study investigates the research parameter "Atypical cells" parameter in context of automated urinalysis to detect cellular atypia as a potential indicator of bladder cancer. In total, 50, mainly female samples with higher than 1 atypical cell/µL result were included in the study with one case of a high-grade urothelial carcinoma. The positive case provided evidence for the capability of the UF-Series to detect atypical cells in urine. The negative cases presented clues that probable vulvovaginal contamination and crowded specimens could be deceptive for this parameter.

#UFseries #AtypicalCells #BladderCancer #Screening

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OA

Ren C *et al.* (2020)

Investigation of Atyp.C using UF-5000 flow cytometer in patients with a suspected diagnosis of urothelial carcinoma: a single-center study. Diagn Pathol 15(1):77

https://pubmed.ncbi.nlm.nih.gov/32586345/

What we see as the essence: This study evaluated the predictive power of the UF-5000 research parameter 'Atypical Cells' for patients with a suspected diagnosis of urothelial carcinoma. In total, urinary specimens of 128 patients that were enrolled for urinary cytology analysis were included in this investigation and analysed on the UF-5000, aiming to evaluate its performance in identifying atypical or malignant urothelial cells. The UF-5000 findings were in agreement with cytopathology in 73 % of the investigated cases. In conclusion, the 'Atypical Cells' parameter bears the potential of an accessory test for urothelial carcinomas in context of routine urinary diagnostics, that might help to identify high-risk patients that require more specific follow-up and medical treatment.

#UF5000 #AtypicalCells #BladderCancer #Screening

OA

Tınay İ *et al.* (2020)

"Atypical Cell" Parameter in Automated Urine Analysis for the Diagnosis of Bladder Cancer: A Retrospective Pilot Study. Bull Urooncol 19(1):17-19

http://cms.galenos.com.tr/Uploads/Article_36890/UOB-19-17-En.pdf

What we see as the essence: This study evaluated the application of the UF-5000 and its research parameter 'Atypical Cell' in supporting the diagnosis of bladder cancer in a retrospective manner in a heterogenous study population. With an acceptable sensitivity of 75 % and a specificity of 100 %, the UF-5000 demonstrated potential value for diagnostic decisions on follow-up cystoscopy for patients with low-risk non-muscle invasive bladder cancer (NMIBC). For patients with high-risk NMIBC, sensitivity and specificity values are lower, but comparable or even better, if compared to cytology. The authors thus revealed the potential to avoid invasive procedures on patient side and to save costs for unnecessary treatments. To further investigate and validate the presented findings, a prospective study is in preparation.

#UF5000 #AtypicalCells #BladderCancer #Screening

Aydin O *et al.* (2020)

Atypical cells in Sysmex UN automated urine particle analyzer: a case report and pitfalls for future studies. Turk J Biochem; aop

https://www.degruyter.com/view/journals/tjb/ahead-of-print/article-10.1515-tjb-2019-0418/article-10.1515-tjb-2019-0418.xml

What we see as the essence: The UF-4000 automatically detected atypical cells in the urine specimen of a 73-year old individual with recurrent high-grade urothelial carcinoma in an outpatient setting, which was confirmed by manual microscopy, demonstrating the potential of the UF-Series to detect malignancies.

#UF4000 #AtypicalCells #BladderCancer #Screening #CaseReport

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7   Body fluid

NEW

Baran E and Ilki AA (2023):

Evaluation of Sysmex UF-5000-BF Module for Sterile Body Fluids. An Alternative for Conventional Methods? Clin Lab 69(4).

https://pubmed.ncbi.nlm.nih.gov/37057945/

What we see as the essence: This study highlights the capabilities of the UF-Series Body Fluid mode in automated detection of bacterial cells for rapid prediction of positive body fluid culture results. For CSF, pleural and CAPD fluids, the bacteria count showed a sensitivity of 100 % and a NPV of 100 %, allowing the direct rule-out of negative samples with impact on prevention of unnecessary antibiotic treatments in the sense of antimicrobial stewardship, especially in combination with MALDI-TOFF mass spectrometry for rapid pathogen identification.

#BodyFluid #UF5000 #Performance #RapidDiagnostics

OA

Siatkowski M *et al.* (2022):

Performance evaluation of UF-4000 body fluid mode for automated body fluid cell counting. Clin Chim Acta 531:152-156

https://pubmed.ncbi.nlm.nih.gov/35398022/

What we see as the essence: This study evaluated the performance of the UF-4000 body fluid mode in comparison to manual light microscopy for ascitic, CSF, pleural, synovial and CAPD fluids. The investigation was executed under real operating conditions within a microbiology laboratory setup and revealed an excellent performance for WBC and RBC counting, reaching 100 % sensitivity and 100 % specificity for most fluids. Especially for ascites the body fluid mode showed the potential to rule-out infections in urgent situations. The outcome of this study highlights the potential of the UF-series body fluid mode for partial replacement of manual body fluid assessment methods. Manual methods might be still required for some cases with abnormal WBC cell counts and scattergram distributions, but overall, positive workflow impacts have been observed.

#BodyFluid #UF4000 #Performance #RapidDiagnostics

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OA

Dossou N *et al.* (2022):

Evaluation of Flow Cytometry for Cell Count and Detection of Bacteria in Biological Fluids. Microbiology Spectrum 10(1):e0183021

https://journals.asm.org/doi/10.1128/spectrum.01830-21

What we see as the essence: In the light of diagnostic pathway efficiency for the analysis of body fluids in context of monitoring effusion-causing diseases and the diagnosis of infectious diseases, this study aimed to evaluate the analytical performance (I) of the UF-4000 and the XN-10 as methods for the cytological analysis of different body fluids in comparison to manual counting chambers and manual leukocyte differential counts and (II) of the UF-4000 s a method for the microbiological analysis in comparison with direct Grams staining (DGS) and/or the conventional cultures. Three optimal cut-off values have been defined for the prediction of DGS-positivity for peritoneal (465.0 bacteria/µL), synovial (1200.0 bacteria/µL), and cerebrospinal fluids (17.2 bacteria/µL) with maximum sensitivity and highest negative predictive values. In conclusion, bacterial counts, obtained by flow cytometry on the UF-4000 correlate with direct Gram staining and culture results. The body fluid mode of the UF-Series could thus be used to improve upstream of routine microbiological workflows, aiming the improvement and acceleration of the diagnosis of infectious diseases in biological fluids.

#BodyFluid #UF4000 #XN10 #BACT #SynovialFluid #CSF #PeritonealFluid

Seghezzi M *et al.* (2021):

Performance evaluation of automated cell counts compared with reference methods for body fluid analysis. Diagnosis (Berl). Online ahead of print.

https://pubmed.ncbi.nlm.nih.gov/34599561/

What we see as the essence: This study aimed to evaluate the analytical performance of the UF-5000 body fluid mode in comparison to manual microscopy and the body fluid mode of the XN-1000 for different types of non-CSF body fluids. In conclusion, the UF-5000 body fluid mode shows a very good performance for differential counts of cells in ascitic, pleural and synovial and is thus a suitable and reliable tool in automated body fluid analysis.

#BodyFluid #UF5000 #XN1000 #SynovialFluid #CSF #PeritonealFluid #Ascitis #BALF

OA

Cho J *et al.* (2020):

Performance Evaluation of Body Fluid Cellular Analysis Using the Beckman Coulter UniCel DxH 800, Sysmex XN-350, and UF-5000 Automated Cellular Analyzers. Ann Lab Med 40(2):122-130

https://pubmed.ncbi.nlm.nih.gov/31650728/

What we see as the essence: Different types of body fluid specimen were examined using manual counting and three the automated cellular analysers XN-350, UF-5000 and UniCel DxH 800. Additionally, 2,779 BF analysis results were retrospectively reviewed. All three analysers showed good agreement for total nucleated cell (TNC) and red blood cell (RBC) counts, except for the RBC count in CSF samples using the UniCel DxH 800. However, variable degrees of differences were observed during differential cell counting. In conclusion, the three automated analysers showed good analytical performances and proper reflex and interpretation guidelines can help to utilise the generated data.

#UF5000 # BodyFluidMode #Performance #XN350 #UniCel

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OA **Koo M *et al.* (2019):**

Comparison of Red Blood Cell, White Blood Cell and Differential Counts between UF-5000 System and Manual Method. J Lab Med Qual Assur 2019; 41(3): 172-178

http://www.jlmqa.org/journal/download_pdf.php?doi=10.15263/jlmqa.2019.41.3.172

What we see as the essence: Analysis of body fluids provides important information for assessing various medical conditions. This study aims to validate the analytical and diagnostic performance of the UF-5000 for the analysis of different body fluids. The performance of RBC counts, WBC counts and differentiation of leucocytes was assessed in comparison to light mircroscopy for ascitic, pleural, and cerebrospinal and other body fluids. In conclusion, the body fluid application on the UF-5000 proved to be an effective and automated alternative to chamber counting in laboratory routine analysis, thereby enhancing laboratory workflow and clinical effectiveness.

#UF5000 # BodyFluidMode #RBC #WBC #Workflow #AutomatedCellCounting

Seghezzi M *et al.* (2017):

Preliminary evaluation of UF-5000 Body Fluid Mode for automated cerebrospinal fluid cell counting. Clin Chim Acta. 473:133-138.

https://www.ncbi.nlm.nih.gov/pubmed/28843601

What we see as the essence: This study evaluated the body fluid mode of the UF-5000 for analysis of CSF in comparison to microscopy. The UF-5000 showed a high diagnostic accuracy for TNC, WBC and RBC counts, as well as high sensitivities and specificities and confirmed a low limit of detection for the RBCs. In conclusion, the UF-5000 body fluid mode offers rapid and accurate quantification of cells, including bacterial cells in CSF samples in clinically relevant concentration ranges, allowing the replacement of microscopy for CSF samples without abnormal cell counts or scattergrams.

#UF5000 # BodyFluidMode #CSF #AutomatedCellCounting

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8 Medicoeconomics

OA

Herráez Carrera Ó and Jarabon Bueno MDM (2020)

Cost analysis of the automated examination of urine with the Sysmex UN-Series™ in a Spanish population. Pharmacoecon Open 10(22) [Online ahead of print].

https://www.ncbi.nlm.nih.gov/pubmed/32086775

What we see as the essence: This study aimed to investigate the potential of the Sysmex UN-Series to reduce high financial costs and high and time-consuming laboratory workloads of current urinalysis practice. By investigating more than 90,000 handled urine samples of a 10-year period, including financial data and alternative costs of reference and test scenarios, potential average cost savings of 340,000 € per year was identified for the use of automated urine examination, compared to the current urinalysis practice. On top, the UN-Series has the potential to reduce the annual working hours of laboratory personnel to up to 1615 hours. In conclusion, the implementation of the UN-Series within routine practice in clinical laboratories could minimise costs, provide substantial savings for investment, improve laboratory procedures and could contribute to synergy between clinical analysis and microbiology laboratories.

#UNSeries #CostSavings #Medicoeconomics #UTI

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