

Q3 2019 Urine Culture



American Association of Bioanalysts

5615 Kirby Drive, Suite 870
Houston, TX 77005
800-234-5315 ♦ 281-436-5357



Q3 2019 Urine Culture

Specimen 11 - 65 year old Female, Dysuria

Organisms	Extent	1	2	3	4	5	Total
943 - Aerobe found; but referred for ID		10	0	0	0	0	10
994 - Growth of gram-positive organisms		2	1	1	0	0	4
879 - Staphylococcus saprophyticus		0	0	3	0	0	3
989 - Klebsiella; Staphylococcus or Streptococcus		0	0	2	0	0	2
873 - Staphylococcus sp.; NOS		0	0	1	0	0	1
723 - UNKNOWN		1	0	0	0	0	1
881 - Streptococcus sp.; NOS		0	0	1	0	0	1
874 - Staphylococcus sp.; coagulase-negative; NOS		0	0	1	0	0	1
TOTAL PARTICIPANTS							23

Flagging appears for failure to report 873, 874, 879, 942, 943, 989, or 994.

In addition to the required organism, participants in all extents may report (No additional codes)

This sample contained *Staphylococcus saprophyticus*.

The urine culture obtained from this patient grew greater than >10 medium-to-large-sized, nonhemolytic smooth white colonies on the blood agar plate that began to exhibit pigment production (yellow) with extended incubation. Multiplying the actual colony count by 1000, the total colony count was >10⁴ colony forming units per milliliter (CFU/mL). The uropathogen was urease-positive, and subsequently confirmed as *Staphylococcus saprophyticus*. *S. saprophyticus* is one of the most common causes of urinary tract infections (UTI) in women. This species adheres more effectively to the epithelial cells lining the urogenital tract than other coagulase-negative Staphylococci (CoNS) and rarely found on other mucous membranes or skin surfaces. Importantly, when present in urine cultures, *S. saprophyticus* may be found in low numbers (< 10,000 CFU/mL) and still be considered significant.

Specimen 12 - 81 year old Male, Fever, pain

Organisms	Extent	1	2	3	4	5	Total
943 - Aerobe found; but referred for ID		7	0	0	0	0	7
990 - Proteus or Pseudomonas		1	0	4	0	0	5
838 - Pseudomonas sp.; NOS		0	0	3	0	0	3
841 - Pseudomonas aeruginosa		0	0	3	0	0	3
948 - No pathogens isolated		2	0	0	0	0	2
993 - Growth of gram-negative organisms		2	0	0	0	0	2
878 - Staphylococcus epidermidis		0	0	1	0	0	1
TOTAL PARTICIPANTS							24

Flagging appears for failure to report 838, 841, 942, 943, 990, or 993

In addition to the required organism, participants in all extents may report 874, or 878.

This sample contained *Pseudomonas aeruginosa* and *Staphylococcus epidermidis*.

Q3 2019 Urine Culture

The urine culture of this hospitalized teenaged patient with symptoms of pyelonephritis (fever and flank pain) grew a clinically significant ($>10^5$ CFU/ml) quantity of gram-negative rods (GNR) and scant growth ($<10^4$ CFU/ml) gram-positive cocci. The GNR appeared β -hemolytic on blood agar, and subsequent biochemical testing identified this organism as *Pseudomonas aeruginosa*. *P. aeruginosa* is a common cause of hospital-acquired infections and can be presumptively identified by its fruity odor of grapes combined with its characteristic colony morphology (green pigment) and oxidase^{POS} and indole^{NEG} biochemical reactions. This organism should not be confused with β -hemolytic *E. coli* as *P. aeruginosa* is a nonfermenter (i.e., clear-to-dark on MAC). Insignificant numbers of CoNS (*Staphylococcus epidermidis*) was also associated with the patient's urine culture and, given its low predominance (>10 -fold less numerous than predominant organism), reported as "Urogenital Microbiota".

Specimen 13 - 23 year old Male, Incontinency

Organisms	Extent	1	2	3	4	5	Total
943 - Aerobe found; but referred for ID		8	0	0	0	0	8
799 - Escherichia coli		0	0	5	0	0	5
987 - E.coli; Citrobacter or Enterobacter		1	0	3	0	0	4
991 - Klebsiella or Enterobacter		0	0	1	0	0	1
798 - Escherichia sp.; NOS		0	0	1	0	0	1
993 - Growth of gram-negative organisms		1	0	0	0	0	1
949 - No aerobic growth		1	0	0	0	0	1
TOTAL PARTICIPANTS							23

Flagging appears for failure to report 798, 799, 942, 943, 987, or 993.

In addition to the required organism, participants in all extents may report (No additional codes).

This sample contained *Escherichia coli*.

Strong urges to urinate, and sometimes urinary incontinence can be symptoms of a urinary tract infection, as seen in this case. Quantitative urine culture of a clean-catch urine specimen obtained from this patient grew $\geq 10^5$ CFU/mL *Escherichia coli*. *E. coli* is an organism that, in contrast to the vast majority of organisms encountered in the clinical bacteriology laboratory, can be tested and reported with minimal work-up. That is, oxidase-negative and gram-negative organisms that are spot indole-positive and β -hemolytic on blood agar can be identified as *E. coli*. Alternatively, indole-positive colonies that are nonhemolytic and lactose positive (e.g., MAC, EMB) can be identified as *E. coli* with a negative PYR test.

Specimen 14 - 45 year old Male, Fever, pain

Organisms	Extent	1	2	3	4	5	Total
943 - Aerobe found; but referred for ID		10	0	0	0	0	10
994 - Growth of gram-positive organisms		2	1	2	0	0	5
873 - Staphylococcus sp.; NOS		0	0	2	0	0	2
989 - Klebsiella; Staphylococcus or Streptococcus		0	0	2	0	0	2
878 - Staphylococcus epidermidis		0	0	1	0	0	1
985 - Organism is gram-positive		0	0	1	0	0	1
881 - Streptococcus sp.; NOS		0	0	1	0	0	1
TOTAL PARTICIPANTS							23

Flagging appears for failure to report (No additional codes).

In addition to the required organism, participants in all extents may report 873, 878, 943, 985, 989, and 994.

This sample contained *Staphylococcus epidermidis*.

Q3 2019 Urine Culture

In this case, a voided midstream urine specimen was obtained from an outpatient with flank pain and from which $<10^3$ CFU/mL of *Staphylococcus epidermidis* grew on blood and colistin-nalidixic agar plates (BAP, CNA). Such culture results are typically reported as “No growth of $\geq 10^3$ CFU/mL”. While infectious syndromes such as cystitis or, more commonly, acute pyelonephritis can be associated with flank pain, other noninfectious causes are possible, as well (e.g., kidney stones, muscle spasm, Crohn’s disease).

Specimen 15 - 66 year old Female, Dysuria

Organisms	Extent	1	2	3	4	5	Total
943 - Aerobe found; but referred for ID		9	0	0	0	0	9
987 - E.coli; Citrobacter or Enterobacter		1	0	4	0	0	5
799 - Escherichia coli		0	1	4	0	0	5
993 - Growth of gram-negative organisms		2	0	0	0	0	2
994 - Growth of gram-positive organisms		1	0	1	0	0	2
819 - Micrococcus sp.; NOS		0	0	1	0	0	1
798 - Escherichia sp.; NOS		0	0	1	0	0	1
TOTAL PARTICIPANTS							26

Flagging appears for failure to report 798, 799, 943, 987, or 993.

In addition to the required organism, participants in all extents may report 994.

This sample contained *Escherichia coli* and *Corynebacterium* sp.

This patient’s voided midstream urine specimen grew $\geq 10^5$ CFU/mL gram-negative rods (GNR) and $<10^4$ CFU/mL catalase-positive gram-positive rods (GPR). Work-up recommendations vary with respect to patient demographics and can be institution-specific, but in general, the guidelines would suggest a full work-up (i.e., full identification and susceptibility) for the potential pathogen (GNR) and minimal morphologic identification (MMI) for the GPR (i.e., based on colony/Gram stain morphology, hemolysis, and rapid same-day biochemical testing). The GNR was presumptively identified as *Escherichia coli* with its characteristic pink colonies on MAC and oxidase^{neg}, spot indole^{pos}, and PYR^{neg} biochemical reactions and later confirmed as *E. coli* on a semi-automated ID system. While the coryneform GPR was worked-up by MMI (according to the local protocol) and reported as “Urogenital Microbiota”, it can be important in some cases (i.e., especially for high-risk patients) to rule-out uropathogenic *Corynebacterium urealyticum*, if clinically indicated (*C. urealyticum* tests urease-positive; whereas, most other *Corynebacterium* spp. test negative for urease).