



**PARTICIPANT STATISTICS**

Specimen 1 - Urine - 78 year old Female, nursing home, incontinent

Organisms	Extent	1	2	3	4	5
765 <i>Campylobacter jejuni</i>						1
767 <i>Citrobacter</i> sp.; NOS				26		
769 <i>Citrobacter freundii</i>		1	67	36		5
777 <i>Corynebacterium</i> sp.; NOS				2	4	
799 <i>Escherichia coli</i>				1		
814 <i>Klebsiella pneumoniae</i>				1		
819 <i>Micrococcus</i> sp.; NOS				2		
837 <i>Proteus vulgaris</i>				1		
943 Aerobe found; but referred for ID		1				
983 Organism is gram-negative		2	1	16		
987 <i>E.coli</i> , <i>Citrobacter</i> or <i>Enterobacter</i>		1		5		
991 <i>Klebsiella</i> or <i>Enterobacter</i>				1		
993 Growth of gram-negative organisms		5	1	4		
TOTAL PARTICIPANTS		9	3	126	40	6

Flagging appears for failure to report 767, 769, 922, 943, 983, 985, 987 or 993.  
 In addition to the required organism, participants in all extents may report 777.

This urine specimen contained *Citrobacter freundii* and the diphtheroid, *Corynebacterium* sp. The rule for 4 decades has been "four days on a Foley yields 100% urinary tract infections." If the patient is on antibiotic therapy or prophylaxis, and the collection bag is kept below the pelvis, the results can be much improved if not eradicated. Lab monitoring is needed to detect an increase or change of organisms in subsequent specimens. The sooner the removal of the Foley, the better the patient outcome.

*C. freundii* is an H2S-producing close cousin of *E. coli* and thus mimics salmonellae while lacking the virulence. It has probably been blamed for more disease than it is capable of causing because it's common, and when no pathogenic bacteria are seen and you have a viral cause, or a drug-induced symptomatology, *C. freundii* as the only recognizable agent present is blamed. It can easily be the pathogen in a debilitated patient with a Foley-caused bladder blockage.

Citrobacters are citrate-positive, H2S-positive enterics, but *C. freundii* is indol-negative, *C. diversus* is indol-positive, their mimics, salmonellae are lysine-positive and protei are phenylalanine-positive. Kits ID them easily

Specimen 2 - Throat - 18 year old Male, fever, cough

Organisms	Extent	1	2	3	4	5
718 Normal flora found, not normally reported			1			1
881 <i>Streptococcus</i> sp.; NOS				1		
882 <i>Streptococcus</i> sp.; non-hemolytic				2		
883 <i>Streptococcus</i> sp.; alpha-hemolytic		1	19			1
885 <i>Streptococcus</i> sp.; alpha-hemolytic; not Grp D				3		
899 <i>Streptococcus bovis</i>				1	1	
919 Neg for beta-hemolytic strep screen		1	2	13	2	1
922 Neg for Grp A strep screen by culture		3	13	61	2	2
923 Pos for Grp A strep screen by culture		1		3		
925 Neg for Grp B strep screen by culture				2		
927 Neg for strep; not screened for GC			2	2	1	1
943 Aerobe found; but referred for ID				1		
948 No pathogens isolated		1	1	12	7	1
950 Non-pathogenic aerobe found; no anerobic work up performed						1
985 Organism is gram-positive		3	2	15		
TOTAL PARTICIPANTS		9	22	135	14	7

Flagging appears for failure to report [no codes]  
 In addition to the required organism, participants in all extents may report 718, 881, 882, 883, 885, 899, 919, 922, 925, 927, 943, 948, 950, 975 and 985.

This throat revealed alpha-hemolytic *Streptococcus* sp. This sample had no discernible pathogens. There are many viral infections which are reasonably common to cause symptoms and which result in, "no pathogens found" reports; "found" is the operative word.

Specimen 3 - Genital - 21 year old Male, discharge, flank pain, fever

Organisms	Extent	1	2	3	4	5
769 <i>Citrobacter freundii</i>				1		
825 <i>Neisseria</i> sp.; NOS		1	1	33		1
826 <i>Neisseria gonorrhoeae</i>		1		21	14	2
827 <i>Neisseria gonorrhoeae</i> ; beta-lactamase positive				4	2	3
829 <i>Neisseria meningitidis</i>				1		
874 <i>Staphylococcus</i> sp.; coagulase-negative; NOS						1
878 <i>Staphylococcus epidermidis</i>			1			
914 Pos for <i>N. gonorrhoeae</i> by culture		1		7	1	
915 Presumptive for <i>N. gonorrhoeae</i> ; would refer		1	1	6	1	
918 Growth on Thayer Martin; would refer		2	1	2		1
943 Aerobe found; but referred for ID			3	6	1	
947 No aerobic growth on blood agar		1		1		
949 No aerobic growth		1				
951 No aerobic or anaerobic growth				1		
983 Organism is gram-negative		10	2	13		

**BACTERIOLOGY**

985 Organism is gram-positive

Organisms	Extent	1	2	3	4	5
TOTAL PARTICIPANTS		18	8	99	19	8

Flagging appears for failure to report 825, 826, 827, 914, 915, 918, 943, 947 or 983.  
 In addition to the required organism, participants in all extents may report [no additional codes].

This specimen contained *Neisseria gonorrhoeae*. A patient in the sexually active age range with urethral discharge, a recent history is nearly diagnostic. Presence of Gram Positive diplococci certainly so. Unless allergy to penicillin is present, treatment with antibiotics is straightforward. Even if there is a known allergy, a number of drugs are effective as antibiotic resistance is not yet common. Appropriate follow up for sexual partners is imperative to interrupt the infectious cycle.

Specimen 4 - Stool - 22 year old Male, vomiting, headache

Organisms	Extent	1	2	3	4	5
798 <i>Escherichia</i> sp.; NOS				1		
815 <i>Lactobacillus</i> sp.; NOS				1		
846 <i>Salmonella</i> sp.; NOS		1		67	7	5
847 <i>Salmonella</i> sp.; not typhi				1		
850 <i>Salmonella choleraesuis</i>				1		
851 <i>Salmonella typhi</i>				1		
854 <i>Salmonella</i> sp.; Group B				3	4	2
929 Stool cult not performed; would refer				2		7
941 Neg for <i>Sal</i> & <i>Shig</i> (ref for <i>Vib</i> ; <i>Yers</i> & <i>Campy</i> cult)				1		
943 Aerobe found; but referred for ID		2				
985 Organism is gram-positive		1				
983 Organism is gram-negative		7		8		
TOTAL PARTICIPANTS		11		86	11	14

Flagging appears for failure to report 846, 847, 854, 929, 943 or 983.  
 In addition to the required organism, participants in all extents may report 815 and 985.

This stool contained *S. typhimurium* and *Lactobacillus*. *S. typhimurium* is by far the most commonly isolated species from clinical cases in the USA and Europe. Its enhanced virulence and frequency in our food chain, particularly poultry, pork and ground meats, our pets and human contamination (hand washing failures). Uncooked salad vegetables watered from polluted irrigation ditches are a common source. Unrefrigerated food from "salad bars" may have infected this patient.

*S. typhimurium* is a "typical" strain readily seen as a black-centered red colony on XLD agar and which is lysine-positive, oxidase and urease-negative. Type with antisera, groups B and D only, so the B is positive for *typhimurium* and D will be a negative control.

Do AST on salmonellae, although current thinking does not use antibiotics for diarrheas, but only if, septicemia results.

The *Lactobacillus* is just normal flora.

Specimen 5 - Blood - 9 year old Male, frequent blood draws

Organisms	Extent	1	2	3	4	5
750 <i>Bacillus</i> sp.; NOS		1		41	8	6
753 <i>Bacillus cereus</i>				3	2	2
769 <i>Citrobacter freundii</i>				1		
777 <i>Corynebacterium</i> sp.; NOS				1		
787 <i>Enterobacter</i> sp.; NOS				1		
873 <i>Staphylococcus</i> sp.; NOS				11		
874 <i>Staphylococcus</i> sp.; coagulase-negative; NOS		1		23	1	2
875 <i>Staphylococcus</i> sp.; coagulase-positive; NOS				2		
877 <i>Staphylococcus aureus</i>				3	2	
878 <i>Staphylococcus epidermidis</i>		3	1	31	12	5
943 Aerobe found; but referred for ID		5		18	3	1
944 Anaerobe found; but referred for ID				1		
945 No anaerobes isolated					2	
948 No pathogens isolated				1	1	
983 Organism is gram-negative				1		
985 Organism is gram-positive		14		11		
TOTAL PARTICIPANTS		24	1	149	31	16

Flagging appears for failure to report 873, 874, 878, 943, 945 or 985 along with 750, 753, 943, 945 or 985.  
 In addition to the required organism, participants in all extents may report [no additional codes].

This blood revealed *Bacillus cereus* and *Staphylococcus epidermidis*. Any positive blood culture is considered to be hazardous until proven otherwise. The Staph is likely skin contamination, but should be worked up.

However, clearly the bug of interest is the *Bacillus*. This is a gram positive rod, commonly found as a normal GI flora. They are facultative aerobes and can be found as a cause of bacteremia. Most commonly this is found in immunosuppressed patients, but a not insignificant number of burn patients can develop septicemia. *Bacillus cereus* is beta hemolytic and produces two toxins, cereolysin and phospholipase C

All positive blood cultures are panic values. Work up the *Bacillus*, but don't forget to report the Staph as well until you can be sure it is just a collection site contaminant.