

BACTERIOLOGY PROFICIENCY TESTING PROGRAM

General Category

January 15, 2002

This report summarizes the results of the proficiency test administered January 15, 2002 to laboratories in the General Bacteriology category.

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Bacteriology Proficiency Testing Program

GENERAL INFORMATION

The Bacteriology Proficiency Testing Program. Three proficiency testing events are given annually, each consisting of a minimum of five specimens. In order to successfully complete a test event, participating laboratories must achieve a score of 80% or greater. Failure of the testing program is defined as a score of less than 80% on two of three consecutive test events.

Authentication. The presence and identity of the organism(s) in each specimen must be confirmed by at least 90% of the referee or participating laboratories. Referee laboratories are selected from New York State participating laboratories (located throughout the State) with acceptable and reproducible levels of performance. Sample vials are subjected to extensive quality control testing in our laboratory during preparation and storage.

Grading System. Laboratories are to process proficiency test specimens in the same manner as patient specimens. Thus, laboratories are responsible for identifying test isolates to the same level as performed on patient isolates. If your laboratory speciates an organism on special request, then you must also speciate it in the proficiency test; consider speciation to have been requested on all reportable isolates. In addition, laboratories are not responsible for culturing any test samples from specimen sources which they do not process. Information regarding your laboratory's reporting protocol was provided to us in the questionnaire previously distributed to all laboratories. Any changes in reporting protocol must be received by our office prior to the mailout date for proficiency testing for that information to be considered in grading.

Our testing format is in compliance with HCFA guidelines as specified in the regulations of CLIA '88. One-half of our samples require identification of all organisms present. The other half requires that only the pathogenic organism(s) be reported. We recognize the potential for any organism to be pathogenic depending on the clinical condition of the patient. However, our samples are designed so that only well-established pathogens should be reported.

Tests are graded in strict adherence to HCFA guidelines, as specified in the regulations of CLIA '88. Each of the specimens receives a score as determined by the following formula:

$$(a + b)/(c + d + e) \times 100\%$$

a = # correct identifications

b = # correct antibiotic susceptibility results (if applicable)

c = # possible identifications

d = # possible antibiotic susceptibility results (if applicable)

e = # additional organisms reported

Grades for each sample are then averaged to determine the final grade for this testing event. The minimum passing grade for each test event is 80%.

JANUARY 15, 2002 TEST EVENT

Number of Participating Laboratories

Receiving specimens 256
Returning results 255 99.6(%)

Grade Distribution		
Score	Number	Percent
100	208	81.6
90 - 99	7	2.7
80 - 89	35	13.7
70 - 79	2	0.8
60 - 69	2	0.8
<60	1	0.4

BACTERIOLOGY - GENERAL
JANUARY 15, 2002
ANSWER KEY

Specimen No. 1 - Stool (Pathogens Only)

No Enteric Pathogens

Specimen No. 2 – Soft tissue abscess (All Organisms Reported)

Group G *Streptococcus*

Specimen No. 3 – Blood - Aerobic / Anaerobic (All Organisms Reported)

No anaerobic organisms

Staphylococcus epidermidis

Specimen No. 4 – Urine (All Organisms Reported) and Antibiotic Susceptibility

Proteus mirabilis

Susceptibility of *P. mirabilis* to: Ciprofloxacin - Susceptible
Nitrofurantoin - Resistant

Specimen No. 5 – CSF (All Organisms Reported)

Haemophilus aphrophilus

Educational Specimen – Blood – Aerobic / Anaerobic (All Organisms Reported)

Propionibacterium granulosum

Chlamydia Specimen

Positive for *Chlamydia trachomatis*

Direct Antigen Detection

A (Throat)

Negative for Group A *Streptococcus*

B (CSF)

Neisseria meningitidis A

C (Vaginal)

Group B *Streptococcus*

REFEREE LABORATORY RESULTS

Specimen Number	Referee Laboratory Responses	Percent [*]
1	No Enteric Pathogens	100
2	Group G <i>Streptococcus</i>	100
3	No anaerobic organisms	100
	<i>Staphylococcus epidermidis</i>	80
	Coagulase-negative <i>Staphylococcus</i>	20 ¹
4	<i>Proteus mirabilis</i>	100
5	<i>Haemophilus aphrophilus</i>	100

^{*} Based on responses of 10 referee laboratories

¹ One of these two laboratories (10%) does not identify Coagulase-negative Staphylococci to species level.

Specimen Number 1 - Stool (Pathogens Only)

This simulated stool specimen did not contain any pathogenic organisms. All referee and 99% of participating laboratories that tested this specimen reported it as negative for enteric pathogens. Organisms included in this specimen were: *Escherichia coli*, *Proteus mirabilis* and *Serratia marcescens*.

No Enteric Pathogens 243

Do not process stool specimens 11

***Shigella dysenteriae* (Group A)**

bioMerieux Vitek GNI / BBL Shigella antisera 1

Specimen No. 2 – Soft tissue abscess (All Organisms)

This simulated abscess specimen contained Group G *Streptococcus*. All referee laboratories identified this organism. Of the participating laboratories that process abscess specimens, 91% identified Group G *Streptococcus* (*S. dysgalactiae* ssp. *equisimilis*).

Methods of identification used by laboratories reporting Group G *Streptococcus*:

Murex Streptex	53
BBL Streptocard Acid Latex	52
DPC PathoDx	43
Two or more systems	33
Conventional biochemicals	14
The Binding Site Strep latex	7
bioMerieux Slidex Strepto kit	6
bioMerieux Vitek GPI	5
Boule Phadebact	4
bioMerieux Vitek API 20 STREP	2
Meridian Diagnostics Meritec Strep	2
Oxoid Strep Plus	2
Dade Behring MicroScan	1
Lifesign Streptolex STAT	1
Pro-Lab Prolex Strep Grouping Latex	1
TOTAL	226

Other reports:

Beta hemolytic *Streptococcus* not group A or B

Dade Behring MicroScan	4
Conventional biochemicals	3
BBL Streptocard Acid Latex	1
Murex Streptex	1
Two or more systems	1
TOTAL	10

Beta hemolytic *Streptococcus* not groups A, B or D

Conventional biochemicals	3
bioMerieux Vitek GPI	2
DPC PathoDx	1
TOTAL	6

Do not process abscess specimens 5

Beta hemolytic <i>Streptococcus</i> not group A	
bioMerieux Vitek GPI	1
Murex Streptex	1
TOTAL	2
<i>Streptococcus dysgalactiae</i> ssp. <i>equisimilis</i>	
bioMerieux Vitek API 20 STREP	1
Dade Behring MicroScan	1
TOTAL	2
<i>Streptococcus dysgalactiae</i>	
bioMerieux Vitek API Rapid ID 32 Strep	1
bioMerieux Vitek GPI	1
TOTAL	2
Beta hemolytic <i>Streptococcus</i> group B	
DPC PathoDx	1
Beta hemolytic <i>Streptococcus</i> group F	
DPC PathoDx	1

Specimen No. 3 – Blood - Aerobic/Anaerobic (All Organisms)

This simulated blood specimen, which was for both aerobic and anaerobic culture, contained *Staphylococcus epidermidis* and no anaerobic organisms.

All referee laboratories and 98% of participating laboratories reported that this specimen was negative for anaerobic organisms.

Staphylococcus epidermidis was identified by 89% of the referee laboratories and by 98% of the participating laboratories whose protocol is to completely identify coagulase-negative Staphylococci from blood cultures.

Participating laboratories reporting that Specimen 3 contained:

No anaerobic organisms 235

Other reports:

Do not process blood cultures 8

Do not isolate anaerobes 7

***Propionibacterium acnes* 2**

Anaerobic gram positive cocci 1

No *Bifidobacterium* isolated 1

No result – lab error 1

Methods of identification used by laboratories reporting *Staphylococcus epidermidis*:

Dade Behring MicroScan	54
bioMerieux Vitek GPI	28
Two or more systems	27
bioMerieux Vitek (unspecified)	17
Conventional biochemicals	14
bioMerieux Vitek API STAPH	12
Do not process blood cultures	8
bioMerieux Vitek API StaphTrac	2
Murex Staphaurex	2
BBL Crystal	1
bioMerieux Vitek API 32 Staph	1
Mini-ID Accu-Staph	1
No information given	1

TOTAL	168
Other reports:	
Coagulase-negative <i>Staphylococcus</i>	
Conventional biochemicals	38
Murex Staphaurex	12
Dade Behring MicroScan	7
Two or more systems	6
Remel Bacti-Staph Latex	5
B-D Staphslide	3
CMS AccuStaph Latex	2
bioMerieux Vitek (unspecified)	1
SureVue Color Staph ID	1
Wampole Staph latex	1
TOTAL	76
Do not process blood cultures	8
Coagulase negative <i>Staphylococcus</i>, not <i>saprophyticus</i>	
Conventional biochemicals	1
No result – lab error	1
<i>Staphylococcus</i> species, not <i>aureus</i>	
Conventional biochemicals	1
Additional organisms reported in Specimen 3:	
Other Coagulase-negative <i>Staphylococcus</i> sp.	1

Specimen No. 4 – Urine (All Organisms) and Antibiotic Susceptibility

This simulated urine specimen contained *Proteus mirabilis*. All referee laboratories and 99% of participating laboratories identified this organism.

Antibiotic susceptibility testing was indicated for this specimen. This isolate of *Proteus mirabilis* was susceptible to ciprofloxacin and resistant to nitrofurantoin. Results of susceptibility testing on this organism can be found on pages 16 - 18.

Methods of identification used by laboratories reporting *Proteus mirabilis*:

Dade Behring MicroScan	84
Vitek GNI	54
bioMerieux Vitek API 20E	41
bioMerieux Vitek (not specified)	34
Two or more systems	23
BBL Crystal	6
Conventional biochemicals	6
BBL Enterotube II	2
IDS RapID ONE	1
Cathra Autoreader	1
Difco Pasco	1
TOTAL	253

Other reports:

Proteus species

Dade Behring MicroScan	1
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Do not process urine specimens	1
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Results of Antibiotic Susceptibility Testing of *Proteus mirabilis* with:

CIPROFLOXACIN

Susceptible

Vitek	92
MicroScan	84
Kirby-Bauer	56
Trek Diagnostic Systems MIC –Sensititre	2
No method indicated	2
Agar dilution	1
B-D Pasco	1
Cathra Autoreader	1
E-test	1
MIC	1
TOTAL	241

Do not test ciprofloxacin 10

Do not perform susceptibility testing 1

Do not process specimen source 1

Intermediate

Kirby-Bauer 1

Resistant

Kirby-Bauer 1

NITROFURANTOIN**Resistant**

MicroScan	76
Vitek	75
Kirby-Bauer	59
No method indicated	2
Agar dilution	1
B-D Pasco	1
Cathra Autoreader	1
MIC	1
Trek Diagnostic Systems MIC -Sensititre	1
TOTAL	217

Nitrofurantoin not tested 31

Intermediate

Vitek	3
MicroScan	1
TOTAL	4

No interpretation of MIC 1

Do not perform susceptibility testing 1

Do not process specimen source 1

Antibiotic Susceptibility Results - Participating & Referee Labs
Proteus mirabilis

Antibiotic	Susceptible		Intermediate		Resistant		Not Tested ^c		Do not process source ^d		No result reported		Not Performed ^e	
	R ^a	P ^b	R	P	R	P	R	P	R	P	R	P	R	P
Ciprofloxacin	10	231	0	1	0	1	0	10	0	1	0	0	0	1
Nitrofurantoin	0	0	1	3	8	209	1	30	0	1	0	1	0	1

^aReferee Laboratories (10 labs total)

^bOther Participating Laboratories (245 labs total)

^cAntibiotic not tested / reported for this organism

^dDo not process specimen source

^eDo not perform antimicrobial susceptibility testing

Specimen No. 5 – CSF (All Organisms)

This simulated cerebrospinal fluid specimen contained *Haemophilus aphrophilus*. All referee laboratories correctly identified *H. aphrophilus*. Of the participating laboratories that processed this specimen, approximately 85% were able to identify this isolate as *Haemophilus aphrophilus*.

Some of the commercial identification methods are unable to differentiate between *H. aphrophilus* and *H. paraphrophilus*. To distinguish between these organisms, some kits recommend the oxidase test, indicating that *H. aphrophilus* is oxidase negative while *H. paraphrophilus* is positive for oxidase. However, the oxidase test is not a reliable method of differentiating between these organisms since both species can have a delayed positive or weakly positive oxidase reaction. The most reliable method for determination of these species is the requirement for V factor (NAD); *H. paraphrophilus* requires the presence of V factor for growth while *H. aphrophilus* does not.

A chart has been included to aid laboratories which may have misidentified *Haemophilus aphrophilus* and to aid in its differentiation from other closely-related organisms.

	V factor required	Hemolysis ¹	Oxidase	Catalase	Indole	Urease	Acid from		
							S ²	G ³	R ⁴
<i>Haemophilus aphrophilus</i>	-	-	-*	-	-	-	+	+	+
<i>H. paraphrophilus</i>	+	-	-*	-	-	-	+	-	-
<i>H. parainfluenzae</i>	+	-	+	-	v	v	+	NA	NA
<i>Pasteurella haemolytica</i>	-	+	+	+	-	-	+	+	v
<i>Pasteurella multocida</i>	-	-	+	+	+	-	+	+	-
<i>Pasteurella bettyae</i>	-	-	v	v	+	-	-	-	-

¹ β hemolysis on sheep blood

* Oxidase may be weak or delayed positive

² S = Sucrose

³ G = Galactose

⁴ R = Raffinose

Koneman EW, Allen SD, Janda WM, Schreckenberger PC, Winn Jr. W. Color Atlas and Textbook of Diagnostic Microbiology, 5th Edition. Philadelphia: Lippincott. 1997.

Methods of identification used by laboratories reporting *Haemophilus aphrophilus*:

IDS RapID NH	52
Conventional biochemicals	43
Two or more systems	40
Dade Behring MicroScan HNID	26
bioMerieux Vitek NHI	20
bioMerieux Vitek API NH	13
bioMerieux Vitek (unspecified)	4
BBL Crystal N/H	2
BBL <i>Haemophilus</i> ID Quad Plated	1
TOTAL	201

Other responses:

Do not process CSF specimens 18

Haemophilus aphrophilus* / *paraphrophilus

IDS RapID NH	3
Dade Behring MicroScan HNID	2
Conventional biochemicals	1
TOTAL	6

Pasteurella haemolytica

bioMerieux Vitek API 20NE	3
Two or more systems	2
bioMerieux Vitek GNI	1
TOTAL	6

Haemophilus paraphrophilus

Dade Behring MicroScan HNID	2
Two or more systems	2
IDS RapID NH	1
TOTAL	5

Haemophilus species

Conventional biochemicals	1
IDS RapID NH	1
Two or more systems	1
TOTAL	3

Gram negative bacillus 2

Haemophilus parainfluenzae

bioMerieux Vitek NHI	1
Two or more systems	1
TOTAL	2

<i>Haemophilus</i> species, not <i>influenzae</i>	
Conventional biochemicals	2
<i>Haemophilus</i> species, not <i>influenzae</i> or <i>parainfluenzae</i>	
Conventional biochemicals	2
<i>Vibrio alginolyticus</i>	
bioMerieux Vitek GNI	2
<i>Capnocytophaga</i> species	
Two or more systems	1
<i>Haemophilus influenzae</i>	
Two or more systems	1
<i>Pasteurella bettyae</i>	
Dade Behring MicroScan	1
<i>Pasteurella multocida</i>	
bioMerieux Vitek GNI	1
<i>Propionibacterium granulosum</i>	
Conventional biochemicals	1
<i>Vibrio</i> species	
bioMerieux Vitek GNI	1

Educational Specimen – Blood – Aerobic / Anaerobic (All Organisms)

This simulated blood specimen contained *Propionibacterium granulosum*. Of the participating laboratories that would isolate anaerobic organisms from blood cultures, 75% identified *Propionibacterium granulosum*.

Propionibacterium granulosum is commonly found on the skin, and when isolated from blood cultures, may be considered a skin contaminant. However, there are reports in the literature implicating this organism as a cause of endocarditis in immunocompetent individuals.^{1,2} In these cases, both patients had calcifications of heart valves, which predisposed them to developing endocarditis. The source of infection for one patient was suspected to be a puncture wound sustained from a wooden splinter; it is unknown for the other. These two cases represent the first in the English literature. Both reports cite a previous review by Prevot, in which 19 cases of invasive infection caused by *P. granulosum* were described. Of these infections, 3 were cases of endocarditis. Other infections caused by *Propionibacterium granulosum* include septicemia and endophthalmitis.

Propionibacterium granulosum is a slow-growing organism, with blood cultures often requiring 7–10 days incubation before growth is evident. Colonies on anaerobic blood agar are clearly visible after 4 days and are tiny, convex and most commonly gray-white in color. Although *P. granulosum* is described as a facultative anaerobe, most strains do not grow aerobically. The organism is catalase positive and gram stains as a gram positive coccobacilli which may form long or branching chains. A chart is included below to aid in the identification of *Propionibacterium granulosum*, especially in its differentiation from *Propionibacterium acnes*. The main method of differentiating *P. granulosum* from *Peptostreptococcus anaerobius* and *Gemella morbillorum* (two of the most frequent responses for this test event) is the catalase test.

¹ Chaudhry, R. et al. *Propionibacterium granulosum*: a rare cause of endocarditis. Journal of Infection. 2000; 41(3):284.

² Armstrong, RW, Wuerflein RD. Endocarditis due to *Propionibacterium granulosum*. Clinical Infectious Diseases. 1996; 23:1178-79.

	Catalase	Indole	Nitrate	Sucrose
<i>Propionibacterium acnes</i>	+	+	+	-
<i>Propionibacterium granulosum</i>	+	-	-	+
<i>Peptostreptococcus anaerobius</i>	-	-	-	- ^w
<i>Gemella morbillorum</i>	-	-	-	w

Koneman EW, Allen SD, Janda WM, Schreckenberger PC, Winn Jr. W. Color Atlas and Textbook of Diagnostic Microbiology, 5th Edition. Philadelphia: Lippincott. 1997

Baron EJ, Peterson LR, Finegold SM. Bailey & Scott's Diagnostic Microbiology, 9th Edition. Boston: Mosby-Year Book, Inc. 1994.

<i>Propionibacterium granulosum</i>	
IDS RapID ANA II	54
bioMerieux Vitek API An-IDENT	29
bioMerieux Vitek ANI	27
Two or more systems	21
bioMerieux Vitek API 20A	18
Dade Behring MicroScan	16
Conventional biochemicals	7
BBL Crystal Anaerobe	3
bioMerieux Vitek (unspecified)	3
16S rDNA sequencing	1
No information given	1
TOTAL	180

Other reports:

<i>Propionibacterium species</i>	
bioMerieux Vitek API An-IDENT	3
Two or more systems	3
bioMerieux Vitek API 20A	2
Conventional biochemicals	2
IDS RapID ANA II	2
Gas-liquid chromatography	1
bioMerieux Vitek ANI	1
TOTAL	14

No result reported 10

<i>Peptostreptococcus anaerobius</i>	
IDS RapID ANA II	7
bioMerieux Vitek API 20A	1
bioMerieux Vitek ANI	1
TOTAL	9

Do not process blood cultures 8

No aerobic growth (do not isolate anaerobes) 7

Anaerobic gram positive bacilli 6

<i>Gemella morbillorum</i>	
IDA RapID ANA II	3
Two or more systems	1
TOTAL	4

<i>Propionibacterium acnes</i>	
IDS RapID ANA II	2
bioMerieux Vitek API 20A	1
Two or more systems	1
TOTAL	4
Anaerobic gram positive cocci	2
<i>Actinomyces meyeri</i>	
IDS RapID ANA II	1
Anaerobic gram negative bacilli	1
<i>Eubacterium aerofaciens</i>	
IDS RapID ANA II	1
<i>Eubacterium limosum</i>	
bioMerieux Vitek API 20A	1
<i>Gemella</i> species	
IDS RapID ANA II	1
Gram variable coccobacilli – unable to ID	
Two or more systems	1
<i>Haemophilus aphrophilus</i>	
Conventional biochemicals	1
<i>Peptostreptococcus</i> species	
bioMerieux Vitek ANI	1
<i>Propionibacterium</i> species, not <i>P. acnes</i>	
IDS RapID ANA II	1
<i>Staphylococcus saccharolyticus</i>	
IDS RapID ANA II	1
<i>Rhodococcus equi</i> and <i>Corynebacterium pseudodiphtheriticum</i>	
Remel Rapid CB	1

*

Chlamydia – cervical swab for direct testing

This simulated cervical swab specimen was positive for *Chlamydia trachomatis*. This specimen was appropriate for laboratories that test for *Chlamydia* using direct testing methods but was not suitable for culture. All laboratories that processed this specimen reported it as positive for *Chlamydia*.

Test kits used by laboratories reporting this specimen as positive for *Chlamydia*:

Gen-Probe Pace 2	63
Abbott LCx C. trachomatis assay	17
Becton-Dickinson Probe Tec	7
Beckman Coulter Access <i>Chlamydia</i> EIA	4
Roche Diagnostics COBAS	4
Behring (Syva) MicroTrak <i>Chlamydia</i> EIA	3
Polymerase chain reaction	3
Vitek VIDAS	2
Quidel QuickVue <i>Chlamydia</i>	1
Two or more systems	1
TOTAL	105

Direct Antigen Detection Specimen

All participating laboratories which perform direct antigen testing received either a simulated throat swab to be tested for Group A *Streptococcus*, a simulated CSF to be tested for bacterial antigens, or a simulated vaginal swab to be tested for Group B *Streptococcus*. Information provided in the Bacteriology Questionnaire was used to determine which type of specimen to send to each laboratory.

Specimen A - Source: Throat for Group A *Streptococcus*

This specimen was negative for Group A *Streptococcus*. Ninety-eight percent of participating laboratories that processed this specimen reported it as negative.

Test kits used by laboratories reporting Specimen A as:

Negative for Group A *Streptococcus*

Becton-Dickinson Directigen 1-2-3 Grp A Strep	18
Abbott Signify Strep A	14
Pacific Biotech Cards Q.S. Strep A	7
Thermo BioStar Aceava Strep A	7
Fisher Sure-Vue Strep A	5
Thermo BioStar Strep A OIA	5
Becton-Dickinson Link 2 Strep A	4
DPC Rapid Strep A	3
Lifesign Status AccuStrep A	3
Applied Biotech SureStep Strep A	1
Beckman-Coulter Icon Fx Strep A	1
GenProbe Group A Strep	1
Genzyme Contrast Strep A	1
Meridian Immunocard Stat Strep A	1
Quidel Quick Vue	1
Reveal Colour Strep A	1
RIM A.R.C. Strep A Test	1
Wampole Clearview Strep A	1
TOTAL	75

Other Responses :

Positive for Group A *Streptococcus*

Beckman Coulter Icon Fx Strep A	1
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Specimen B - Source: CSF

This specimen contained *Neisseria meningitidis* A. Of the participating laboratories that tested this specimen, 94% reported the presence of *Neisseria meningitidis*.

Test kits used by laboratories reporting Specimen B as positive for *N. meningitidis* A,C,Y, W135:

Murex Wellcogen Bacterial Antigen kit 22

***N. meningitidis* A/Y**

B-D Directigen Meningitis Combo test 18

N. meningitidis

Murex Wellcogen Bacterial Antigen kit 3

B-D Directigen Meningitis Combo test 2

TOTAL 5

***N. meningitidis* A/C**

Murex Wellcogen Bacterial Antigen kit 1

***N. meningitidis* A/C/Y**

Murex Wellcogen Bacterial Antigen kit 1

Other reports:

No bacterial antigens detected

Murex Wellcogen Bacterial Antigen kit 2

B-D Directigen Meningitis Combo test 1

TOTAL 3

Specimen C – Source: Vaginal swab for Group B *Streptococcus*

This specimen was positive for Group B *Streptococcus*. All laboratories that tested this specimen reported it as positive.

Test kits used by laboratories reporting Specimen C as positive for Group B *Streptococcus*:

Thermo BioStar Strep B OIA 5

Note:

The inclusion of specimens for direct antigen testing does not reflect any endorsement by the New York State Department of Health of use of these tests in the clinical laboratory.

BACTERIAL IDENTIFICATION BY PARTICIPATING LABORATORIES

	<u>Number Reported</u>	<u>%</u>
SPECIMEN NUMBER 1		
No Enteric Pathogens	243	95.3
Do not process stool specimens	11	4.3
<i>Shigella dysenteriae</i>	1	0.4

SPECIMEN NUMBER 2		
Group G <i>Streptococcus</i>	226	88.6
Beta hemolytic <i>Streptococcus</i> not grp A or B	10	3.9
Beta hemolytic <i>Streptococcus</i> not grps A, B or D	6	2.3
Do not process abscess specimens	5	1.9
Beta hemolytic <i>Streptococcus</i> not grp A	2	0.8
<i>Streptococcus dysgalactiae</i> ssp. <i>equisimilis</i>	2	0.8
<i>Streptococcus dysgalactiae</i>	2	0.8
Beta hemolytic <i>Streptococcus</i> grp B	1	0.4
Beta hemolytic <i>Streptococcus</i> grp F	1	0.4

SPECIMEN NUMBER 3		
No anaerobic organisms	235	92.2
Do not process blood cultures	8	3.1
Do not isolate anaerobes	7	2.7
<i>Propionibacterium acnes</i>	2	0.8
Anaerobic gram positive cocci	1	0.4
No <i>Bifidobacterium</i> isolated	1	0.4
No result – lab error	1	0.4
<i>Staphylococcus epidermidis</i>	168	65.9
Coagulase-negative <i>Staphylococcus</i>	76	29.8
Do not process blood cultures	8	3.1
Coagulase-negative <i>Staphylococcus</i> , not <i>saprophyticus</i>	1	0.4
No result – lab error	1	0.4
<i>Staphylococcus</i> species, not <i>aureus</i>	1	0.4

SPECIMEN NUMBER 4		
<i>Proteus mirabilis</i>	253	99.2
<i>Proteus</i> species	1	0.4
Do not process urine specimens	1	0.4

SPECIMEN NUMBER 5

<i>Haemophilus aphrophilus</i>	201	78.8
Do not process CSF specimens	18	7.0
<i>Haemophilus aphrophilus</i> / <i>paraphrophilus</i>	6	2.4
<i>Pasteurella haemolytica</i>	6	2.4
<i>Haemophilus paraphrophilus</i>	5	2.0
<i>Haemophilus</i> species	3	1.2
Gram negative bacillus	2	0.8
<i>Haemophilus parainfluenzae</i>	2	0.8
<i>Haemophilus</i> species, not <i>influenzae</i>	2	0.8
<i>Haemophilus</i> species, not <i>influenzae</i> or <i>parainfluenzae</i>	2	0.8
<i>Vibrio alginolyticus</i>	2	0.8
<i>Capnocytophaga</i> species	1	0.4
<i>Haemophilus influenzae</i>	1	0.4
<i>Pasteurella bettyae</i>	1	0.4
<i>Pasteurella multocida</i>	1	0.4
<i>Propionibacterium granulosum</i>	1	0.4
<i>Vibrio</i> species	1	0.4

EDUCATIONAL SPECIMEN

<i>Propionibacterium granulosum</i>	180	70.6
<i>Propionibacterium</i> species	14	5.5
No result reported	10	3.9
<i>Peptostreptococcus anaerobius</i>	9	3.5
Do not process blood cultures	8	3.1
No aerobic growth (do not isolate anaerobes)	7	2.7
Anaerobic gram positive bacilli	6	2.4
<i>Gemella morbillorum</i>	4	1.6
<i>Propionibacterium acnes</i>	4	1.6
Anaerobic gram positive cocci	2	0.8
<i>Actinomyces meyeri</i>	1	0.4
Anaerobic gram negative bacilli	1	0.4
<i>Eubacterium aerofaciens</i>	1	0.4
<i>Eubacterium limosum</i>	1	0.4
<i>Gemella</i> species	1	0.4
Gram variable coccobacilli	1	0.4
<i>Haemophilus aphrophilus</i>	1	0.4
<i>Peptostreptococcus</i> species	1	0.4
<i>Propionibacterium</i> species, not <i>P. acnes</i>	1	0.4
<i>Staphylococcus saccharolyticus</i>	1	0.4
<i>Rhodococcus equi</i> and <i>Corynebacterium pseudodiphtheriticum</i>	1	0.4

CHLAMYDIA SPECIMEN

Positive for *Chlamydia trachomatis* 105 100.0

DIRECT ANTIGEN SPECIMEN

A.	Negative for Group A <i>Streptococcus</i>	75	98.7
	Positive for Group A <i>Streptococcus</i>	1	1.3
B.	<i>Neisseria meningitidis</i> A/C/Y/W135	22	44.0
	<i>Neisseria meningitidis</i> A/Y	18	36.0
	<i>Neisseria meningitidis</i>	5	10.0
	<i>Neisseria meningitidis</i> A/C	1	2.0
	<i>Neisseria meningitidis</i> A/C/Y	1	2.0
	No bacterial antigens detected	3	6.0
C.	Positive for Group B <i>Streptococcus</i>	5	100.0