

BACTERIOLOGY PROFICIENCY TESTING PROGRAM

General Category

January 8, 2008

This report summarizes the results of the proficiency test administered January 8, 2008 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. Unsuccessful performance in 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 80% 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 CMS 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 CMS 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%.

Disclaimer

The use of brand and/or trade names in this report does not constitute an endorsement of the products on the part of the Wadsworth Center or the New York State Department of Health.

Notes of Interest

EPTRS Reporting Tips

The EPTRS system has greatly streamlined the transmission of proficiency test results and has drastically reduced the turnaround time for scoring test events. However, the system has certain restrictions and attempts by users to circumvent these restrictions result in a slower grading process and can cause scoring errors. Below are some helpful tips on data entry that can help minimize these problems:

1. Please do not enter an organism more than once for the same sample. For example, do not enter '*E. coli*' under Bacterial Identification 1 and again under Bacterial Identification 2. Do not enter an identification twice in order to list multiple methods of identification – see 2.
2. Please do not enter multiple systems for one identification. The system information is only for statistical purposes and we do not count multiple systems entered. Please choose the ONE system you relied on most for your identification.
3. Please use the drop down list if at all possible. There are very few times when you should need to use the "other" box. Entries such as "Catalase, sugars, gram stain" should be entered as "Conventional biochemicals" rather than typed in the "Other" box. Individual biochemical results are not noted in the statistics.
4. Please do not enter both an MIC and a zone size for one susceptibility result. Enter only the value appropriate for the main system you used to generate your response.
5. Please do not enter extraneous information in the Bacterial Identification field, such as "would send to reference lab for confirmation". We realize this is what you may report to a physician but it is unnecessary for proficiency results and does not affect the your grade. If you would like to enter additional information, please utilize the "Comment" field on the first page of the EPTRS form.

Please follow these suggestions to ensure that your grade is accurate. All extra information, etc can adversely affect the grading program we use.

Bacteriology Questionnaires

Please make sure that the information on your laboratory's Bacteriology Questionnaire is accurate. If you need a copy of your questionnaire for review, please contact our office at 518-474-4177 or email us at bacti@wadsworth.org. Please note that proficiency test results are graded in accordance with information on the questionnaire. **Grades will not be revised due to incorrect information on the questionnaire.**

JANUARY 8, 2008 TEST EVENT

Number of Participating Laboratories:

Receiving specimens 218
Returning results 217 (99.5%)

Grade Distribution		
Score	Number	Percent
100%	189	87.1
90 – 99%	12	5.5
80 – 89%	13	6.0
70 – 79%	3	1.3

REFEREE LABORATORY RESULTS

Specimen Number	Referee Laboratory Responses	Percent*
1	<i>Shigella flexneri</i> , group B	100
2	<i>Haemophilus influenzae</i>	100
3	<i>Clostridium septicum</i>	100
	<i>Staphylococcus epidermidis</i>	80
	<i>Staphylococcus</i> , coagulase negative**	20
4	<i>Staphylococcus aureus</i>	100
5	<i>Neisseria gonorrhoeae</i>	100

* Based on responses of 10 referee laboratories

** These laboratories do not speciate coagulase-negative Staphylococci

Specimen Number 1 - Stool (Pathogens Only)

This simulated stool specimen contained *Shigella flexneri*, group B. This pathogen was identified by all referee laboratories and by 78% of participants that process stool cultures. An additional 21% reported '*Shigella* species'.

Additional organisms in this sample were *Escherichia coli* and *Citrobacter freundii*.

Result	Method Used	# Labs
<i>Shigella flexneri</i> , group B	Dade Behring MicroScan Gram Neg ID	43
	bioMerieux Vitek 1 GNI +	33
	bioMerieux Vitek 2 GN	30
	bioMerieux API 20E	29
	Conventional biochemicals	7
	Other - Wellcolex Colour Shigella	7
	BD Phoenix Gram Negative ID	4
	bioMerieux API Rapid 20E	2
	BD BBL Crystal Enteric/Nonfermenter	1
	BD BBL Enterotube II	1
	Dade Behring MicroScan Rapid Gram Neg	1
	bioMerieux API 20A	1
	BD BBL Shigella Antisera (A-D)	1
	Serotyping	1
	BD Difco Shigella Serotype Kit	1
Total <i>S. flexneri</i>	162	
<i>Shigella</i> species	Dade Behring MicroScan Gram Neg ID	14
	bioMerieux Vitek 2 GN	12
	bioMerieux Vitek 1 GNI +	8
	bioMerieux API 20E	4
	Not given	1
	BD BBL Crystal Enteric/Nonfermenter	1
	bioMerieux API Rapid 20E	1
	Dade Behring Gram Negative Combo	1
	vitek	1
	bioMerieux Vitek2 compact	1
	Total <i>Shigella</i> species	44
<i>Shigella boydii</i> , group C	bioMerieux Vitek 1 GNI +	1
<i>Shigella sonnei</i> , group D	bioMerieux Vitek 2 GN	1
Specimen source not tested		9
	Total All Responses	217

Specimen No. 2 – Sputum (Pathogens Only)

This simulated sputum specimen contained *Haemophilus influenzae*. This organism was correctly identified by all referee laboratories and by 97% of the participating laboratories that process sputum cultures.

Also included in this sample as nonpathogenic flora were alpha-hemolytic *Streptococcus* and *Corynebacterium xerosis*.

Result	Method Used	# Labs	
<i>Haemophilus influenzae</i>	Remel RapID NH	66	
	Conventional biochemicals	37	
	bioMerieux API NH	28	
	Dade Behring MicroScan HNID	24	
	bioMerieux Vitek 1 NHI	23	
	BD BBL Haemophilus ID Quad	12	
	bioMerieux Vitek 2 NH	7	
	Haemophilus Quad Plate	3	
	BD BBL Crystal Neisseria/Haemophilus	1	
	bioMerieux Vitek2 compact NH	1	
	Not given	1	
	Total <i>H. influenzae</i>		203
	<i>Haemophilus</i> species	bioMerieux Vitek 2 NH	1
Conventional biochemicals		1	
Remel RapID NH		1	
Total <i>Haemophilus</i> species		3	
<i>Haemophilus parainfluenzae</i>	bioMerieux Vitek 1 NHI	1	
	Conventional biochemicals	1	
	Total <i>Haemophilus parainfluenzae</i>		2
Specimen source not tested		9	
Total All Responses		217	

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

This simulated tissue specimen contained *Clostridium septicum* and *Staphylococcus epidermidis*.

Clostridium septicum was identified by all referee laboratories and by 84% of participating laboratories that process blood cultures for anaerobic organisms.

Staphylococcus epidermidis was identified by 80% of the referee laboratories. The remaining 20% reported “*Staphylococcus*, coagulase negative” as this is the highest level of identification performed in their laboratory. Of the participating laboratories that processed this sample, 70% identified *S. epidermidis* and 29% reported *Staphylococcus* coagulase negative.

Result	Method Used	# Labs
<i>Clostridium septicum</i>	Remel RapID ANA II	107
	bioMerieux Vitek 1 ANI	25
	bioMerieux API 20A	18
	Dade Behring MicroScan Rapid Anaerobe	16
	bioMerieux API Rapid ID 32A	7
	BD BBL Crystal Anaerobe	3
	16s rDNA sequencing	2
	Not given	1
	Conventional biochemicals	1
	Total <i>Clostridium septicum</i>	180
<i>Clostridium species</i>	Remel RapID ANA II	6
	bioMerieux Vitek 1 ANI	2
	Conventional biochemicals	2
	bioMerieux API 20A	1
	Dade Behring MicroScan Rapid Anaerobe	1
		Total <i>Clostridium species</i>
<i>Clostridium perfringens</i>	bioMerieux Vitek 1 ANI	1
	bioMerieux API 20A	1
	Remel RapID ANA II	1
	Dade Behring MicroScan Rapid Anaerobe	1
		Total <i>Clostridium perfringens</i>
Anaerobic gram positive bacilli		3
No <i>Bifidobacterium</i> isolated		2
<i>Clostridium species</i> not <i>perfringens</i>	Dade Behring MicroScan Rapid Anaerobe	1
<i>Clostridium bifermentans</i>	bioMerieux API 20A	1
Do not process anaerobic cultures		8
Specimen source not tested		6
	Total All Responses	217

Result	Method Used	# Labs
<i>Staphylococcus epidermidis</i>	Dade Behring MicroScan Gram Pos ID	60
	bioMerieux Vitek 2 GP	35
	bioMerieux Vitek 1 GPI	19
	bioMerieux API Staph	13
	Conventional biochemicals	6
	BD BBL Staphyloslide	2
	Murex Staphaurex	3
	16s rDNA sequencing	1
	Biolog MicroLog Gram Positive	1
	Dade Behring MicroScan Rapid Gram Pos	1
	Fisher Healthcare SureVue Color Staph	1
	RapID Staph Plus	1
	Dade Behring MicroScan breakpoint combo 20	1
	bioMerieux API ID 32Staph	1
	Multiple systems	1
	Dade Behring Gram Positive Combo	1
	Total <i>Staphylococcus epidermidis</i>	147
<i>Staphylococcus</i> , coagulase negative	Conventional biochemicals	24
	Murex Staphaurex	11
	Dade Behring MicroScan Gram Pos ID	10
	BD BBL Staphyloslide	5
	bioMerieux Vitek 2 GP	3
	Remel BactiStaph	3
	Not given	1
	bioMerieux RAPIDEC Staph	1
	Fisher Healthcare SureVue Color Staph	1
	Pro-Lab Diagnostics Prolex Staph latex	1
	BIO RAD PASTOREX STAPH PLUS	1
	Multiple systems	1
		Total <i>Staphylococcus</i>, coagulase negative
<i>Streptococcus</i> species	Conventional biochemicals	1
<i>Rothia mucilaginosa</i>	Conventional biochemicals	1
Specimen source not tested		6
	Total All Responses	217

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

This simulated wound specimen contained *Staphylococcus aureus* (MRSA). This organism was correctly identified by all referee laboratories and by all participating laboratories that processed this sample.

Antimicrobial susceptibility testing was indicated with oxacillin and vancomycin. All laboratories that tested this isolate correctly reported it as resistant to oxacillin and susceptible to vancomycin.

MRSA infections, both nosocomial and community-acquired, have been on the increase. New York State is a Center for Disease Control and Prevention (CDC) Emerging Infections Program (EIP) site. As part of this program, active, population-based surveillance for invasive disease caused by MRSA is being conducted. The results of this surveillance through July 2007 can be found at:

http://www.health.state.ny.us/diseases/communicable/staphylococcus_aureus/methicillin_resistant/surveillance/emerging_infections_program.htm

Result	Method Used	# Labs
<i>Staphylococcus aureus</i>	Dade Behring MicroScan Gram Pos ID	62
	Conventional biochemicals	43
	Murex Staphaurex	30
	bioMerieux Vitek 2 GP	21
	BD BBL Staphyloslide	19
	bioMerieux Vitek 1 GPI	12
	Remel BactiStaph	5
	Fisher Healthcare SureVue Color Staph	4
	BD Phoenix Gram Positive ID	3
	bioMerieux API Staph	3
	bioMerieux Vitek Slidex Staph	2
	Pro-Lab Diagnostics Prolex Staph latex	2
	Dade Behring MicroScan Rapid Gram Pos	2
	bioMerieux Vitek2 compact	1
	Multiple systems	1
	Dade Behring Gram Positive Combo	1
	Dade Behring MicroScan break point combo 20	1
	BIO RAD PASTOREX STAPH PLUS	1
	Not given	1
		Total <i>S. aureus</i>
<i>Staphylococcus</i> , coagulase positive	Dade Behring MicroScan Gram Pos ID	1
Specimen source not tested		2
	Total All Responses	217

Results of Antimicrobial Susceptibility Testing – *S. aureus* with oxacillin

Result	Method Used (# Labs)	# Labs	Zone Size	MIC
Resistant	MicroScan (76)	2		NG
		2		≥2
		65		>2
		1		>2
		5		>2.0
		1		>4
	bioMerieux Vitek 2 (46)	44		≥4
		2		>4
	bioMerieux Vitek 1 (41)	1		NG
		37		≥8
		3		>8
	BD Phoenix (4)	1		≥64
		2		>2
		1		>4
	E-test (2)	1		≥96
		1		>256
	Trek Sensititre	4		>8
	bioMerieux Vitek	2		≥8
	bioMerieux Vitek2 compact	1		≥4
	Dade Behring:Pos Breakpoint Combo 20	1		>2
	oxacillin screen agar	1		>6
	in house prepared frozen MIC plate	1		>8
	Siemens-Dried Gram Pos Conventional Panel	1		2
	Agar dilution	1		>2
	Disk diffusion (28)	14	0	
		2	4	
		7	6	
		2	8	
1		9		
1		11		
1		20		
1		NG		
Not given	1			
Total	210			
Test not performed on antibiotic	3			
Test not performed on organism	1			
Specimen source not tested	2			
Do not perform susceptibility testing	1			

Results of Antimicrobial Susceptibility Testing – *S. aureus* with vancomycin

Result	Method Used (# Labs)	# Labs	Zone Size	MIC
Susceptible	MicroScan (74)	2		NG
		55		≤ 2
		15		< 2
		1		1
		1		≥ 2
	bioMerieux Vitek 2 (46)	44		≤ 1
		2		< 1
	bioMerieux Vitek 1 (38)	1		NG
		33		≤ 0.5
		2		2
		1		1
		1		2
	E-test (6)	1		< 2.0
		1		1.0
		4		1.5
	Trek Sensititre (4)	4		≤ 1
	BD Phoenix (3)	1		≤ 1
		2		1
	vancomycin screen agar (3)	3		NG
	Agar dilution	1		1
	Vitek 1	1		≤ 0.05
	bioMerieux Vitek	1		≤ 0.5
	vitek	1		≤ 0.5
	bioMerieux Vitek2 compact	1		≤ 1
	in house prepared frozen MIC plate	1		1
	AB Biodisk Vancomycin E	1		1.5
	Siemens-Dried Gram Pos Panel	1		2
	Disk diffusion (28)	1	12	
		1	16	
		4	17	
		12	18	
		3	19	
3		20		
2		21		
1		25		
1		13		
Not given	1			
Total	211			
Test not performed on antibiotic	3			
Specimen source not tested	2			
Do not perform susceptibility testing	1			

Antibiotic Susceptibility Results - Participating & Referee Labs <i>Staphylococcus aureus</i>				
	Oxacillin		Vancomycin	
	Referee ^a	Participant ^b	Referee ^a	Participant ^b
Susceptible	0	0	10	201
Intermediate	0	0	0	0
Resistant	10	200	0	0
Antibiotic not tested ^c	0	3	0	3
Do not process source ^d	0	2	0	2
Susceptibility testing not performed	0	2	0	1
No result reported	0	0	0	0

^aReferee Laboratories (10 labs)

^bOther Participating Laboratories (207 labs)

^cAntibiotic not tested / reported for this organism

^dDo not process specimen source

Specimen No. 5 – Cervix (Pathogens Only)

This simulated cervical culture contained *Neisseria gonorrhoeae*. All referee laboratories correctly identified this organism as did 96% of participating laboratories that processed this specimen source.

Additional organisms included in this sample were *Staphylococcus epidermidis* and *Corynebacterium xerosis*.

Result	Method Used	# Labs
<i>Neisseria gonorrhoeae</i>	Remel RapID NH	73
	bioMerieux API NH	36
	Dade Behring MicroScan HNID	25
	bioMerieux Vitek 1 NHI	24
	Conventional biochemicals	18
	bioMerieux Vitek 2 NH	9
	GenProbe Accuprobe	4
	Remel BactiCard <i>Neisseria</i>	3
	More than 1 method	3
	BD BBL Crystal <i>Neisseria/Haemophilus</i>	2
	Remel Phadebact Monoclonal GC Test	2
	BD BBL GonoGen II	1
	bioMerieux Vitek2 compact NH	1
	GONOCHEK --- EYLABS	1
	Not given	1
	Total <i>N. gonorrhoeae</i>	203
No pathogens isolated		2
Do not test for <i>N. gonorrhoeae</i>		1
Gram negative diplococci present	bioMerieux API NH	1
No aerobic organisms		1
Specimen source not tested		9
	Total All Responses	217

Chlamydia – cervical swab for direct testing

This simulated cervical swab was provided to laboratories that test for *Chlamydia* using direct detection methods. This sample contains non-viable organisms and is not suitable for laboratories performing *Chlamydia* culture. Currently, 106 out of 217 participating laboratories (49%) perform direct detection testing for *Chlamydia*.

This sample was negative for *Chlamydia* and was reported as such by all of the participating laboratories that tested this specimen.

All Laboratories reported “Negative”

Method Used	# Labs
Gen-Probe PACE 2 CT or CT/GC	40
Gen-Probe Aptima Combo 2	26
BD ProbeTec ET CT or CT/GC	18
Roche Diagnostics COBAS AMPLICOR CT/NG	10
bioMerieux VIDAS	6
Digene Hybrid Capture hc2 CT/GC	1
Other - BD ProbeTec ET	1
Roche Diagnostics AMPLICOR CT/NG	1
BioRad Chlamydia Microplate EIA	1
BioStar Chlamydia OIA	1
Real-time PCR	1
Total	106

Direct Antigen Detection

All participating laboratories which perform direct antigen testing received either a simulated throat swab to be tested for Group A *Streptococcus* or a genital 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 positive for Group A *Streptococcus*. All of the participating laboratories that processed this specimen reported it as positive.

All laboratories reported “Positive”

Method Used	# Labs
Genzyme OSOM Ultra Strep A	17
BD Directigen EZ Strep A	15
BioStar Acceava Strep A	12
Quidel QuickVue + Strep A	7
Abbott Signify Strep A Dipstick	6
Fisher Sure-Vue Strep A Lateral Flow Test	5
BD Chek Strep A	5
Fisher Sure-Vue SELECT Strep A	3
Quidel QuickVue Inline Strep A	3
Meridian Bioscience ImmunoCard STAT Strep A	3
BioStar Strep A OIA Max	3
GenProbe Group A Strep	2
Abbott Signify Strep A Cassette	2
Wampole Clearview Strep A Extract	2
Remel PathoDx Strep A	2
Quidel QuickVue Dipstick Strep A	2
Cardinal Health SP Brand Strep A Cassette	2
Inverness Medical Clearview Strep A Exact II Dipstick	2
Beckman Coulter Icon SC Strep A	1
Stanbio QuStick Strep A	1
Polymedco Poly Stat Strep A	1
Cardinal Health SP Brand Strep A Dipstick	1
LifeSign Status Accustrep A	1
Other – Mainline Confirms Strep A	1
Sacks Medical Corp RefuAH Strep A	1
Inverness Medical Strep A OIA Max Rapid Test	1
Total	101

Specimen C – Source: Genital for Group B *Streptococcus*

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

All laboratories reported “Negative”

Method Used	# Labs
BioStar Strep B OIA	2

BACTERIAL IDENTIFICATION BY PARTICIPATING LABORATORIES

	<u>Number Reported</u>	<u>%</u>
SPECIMEN NUMBER 1		
<i>Shigella flexneri</i> , group B	162	74.7
<i>Shigella</i> species	44	20.3
Specimen source not tested	9	4.1
<i>Shigella boydii</i> , group C	1	0.5
<i>Shigella sonnei</i> , group D	1	0.5

SPECIMEN NUMBER 2		
<i>Haemophilus influenzae</i>	203	93.5
Specimen source not tested	9	4.1
<i>Haemophilus</i> species	3	1.4
<i>Haemophilus parainfluenzae</i>	2	0.9

SPECIMEN NUMBER 3		
<i>Clostridium septicum</i>	180	82.9
<i>Clostridium</i> species	12	5.5
Do not process anaerobic cultures	8	3.7
Specimen source not tested	6	2.8
<i>Clostridium perfringens</i>	4	1.8
Anaerobic gram positive bacilli	3	1.4
No <i>Bifidobacterium</i> isolated	2	0.9
<i>Clostridium bifermentans</i>	1	0.5
<i>Clostridium</i> species, not <i>perfringens</i>	1	0.5
<i>Staphylococcus epidermidis</i>	147	67.7
<i>Staphylococcus</i> , coagulase negative	62	28.6
Specimen source not tested	6	2.8
<i>Rothia mucilaginosa</i>	1	0.5
<i>Streptococcus</i> species	1	0.5

SPECIMEN NUMBER 4		
<i>Staphylococcus aureus</i>	205	94.5
<i>Staphylococcus aureus</i> (MRSA)	9	4.1
Specimen source not tested	2	0.9
<i>Staphylococcus</i> , coagulase positive	1	0.5

SPECIMEN NUMBER 5		
<i>Neisseria gonorrhoeae</i>	203	93.5
Specimen source not tested	9	4.1
No pathogens isolated	2	0.9
Gram negative diplococci present	1	0.5

No aerobic organisms	1	0.5
Do not test for <i>N. gonorrhoeae</i>	1	0.5

CHLAMYDIA SPECIMEN

Negative for <i>Chlamydia trachomatis</i>	106	100%
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DIRECT ANTIGEN SPECIMENS

A. Positive for Group A <i>Streptococcus</i>	101	100%
C. Negative for Group B <i>Streptococcus</i>	2	100%