

BACTERIOLOGY PROFICIENCY TESTING PROGRAM

General Category

September 15, 2009

This report summarizes the results of the proficiency test administered September 15, 2009 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. Samples 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 Health Care Financing Administration, Center for Medicare and Medicaid Services (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

MMWR – Recommendations and Reports

Centers for Disease Control and Prevention. 2009. Recommendations for Diagnosis of Shiga Toxin-Producing *Escherichia coli* Infections by Clinical Laboratories. Morbid. Mortal. Wkly. Rep. 58:(RR-12) is available at: <http://www.cdc.gov/mmwr/PDF/rr/rr5812.pdf>.

Online Instructions and Worksheets

Hard copies of instructions and worksheets will no longer be mailed out with proficiency test samples as seen during the September 2009 PT event. Please follow the instructions that are provided with the samples to obtain the necessary paperwork.

The instructions and worksheets will be available at the New York State Department of Health, Wadsworth Center website at <http://www.wadsworth.org/divisions/infdis/bacti/worksheets.htm>.

Bacteriology Questionnaires

Recently, the Bacteriology Questionnaire was sent to all laboratories along with a molecular detection tests survey. If you have not already done so please update and send your questionnaire as well as the additional survey. Please note that proficiency test results are graded in accordance with information on the Questionnaire. Be certain 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. **Grades will not be revised due to incorrect information on the questionnaire.**

EPTRS Reporting Tips

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 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 can adversely affect the grading program we utilize. Please feel free to contact us during a test event if you have any questions as to how to report a result.

SEPTEMBER 15, 2009 TEST EVENT

Number of Participating Laboratories:

Receiving specimens 203

Returning results 203 (100%)

Grade Distribution		
Score	Number	Percent
100%	181	89
90 – 99%	10	5
80 – 89%	7	3
70 – 79%	1	0.5
<70%	4	2

BACTERIOLOGY - GENERAL
SEPTEMBER 15, 2009
ANSWER KEY

Specimen No. 1 - Stool (Pathogens Only)

Shigella sonnei, group D

Specimen No. 2 – Sputum (Pathogens Only)

Moraxella catarrhalis

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

Citrobacter freundii

Enterococcus faecalis

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

Streptococcus pneumoniae

Susceptibility of *S. pneumoniae* to: Ceftriaxone - Susceptible
Penicillin - Susceptible

Specimen No. 5 – Throat (Pathogens Only)

Group A *Streptococcus*

***Chlamydia* Direct Detection - Cervix**

Positive for *Chlamydia trachomatis*

A – Group A *Streptococcus* Direct Antigen Detection - Throat

Positive for Group A *Streptococcus*

REFEREE LABORATORY RESULTS

Specimen Number	Referee Laboratory Responses	Percent*
1	<i>Shigella sonnei</i> , group D	90
2	<i>Moraxella catarrhalis</i>	100
3	<i>Citrobacter freundii</i> <i>Enterococcus faecalis</i>	100 100
4	<i>Streptococcus pneumoniae</i>	100
5	Group A <i>Streptococcus</i>	100

* Based on responses of 10 referee laboratories

Specimen Number 1 - Stool (Pathogens Only)

This simulated stool specimen contained *Shigella sonnei*, group D. This pathogen was identified correctly by 90% of the referee laboratories.

Of the participating laboratories that process stool cultures for *Shigella*, 97% isolated this organism, with 83% of them reporting *S. sonnei*, group D while 14% identified the isolate as *Shigella* species.

Enterococcus faecalis was included in this specimen as nonpathogenic flora.

Number 1 - Methods of identification used by laboratories reporting:

***Shigella sonnei*, group D**

Siemens (Dade Behring) Negative Combo - any panel	49
bioMerieux Vitek 2 GN	43
bioMerieux API 20E	27
bioMerieux Vitek 1 GNI +	24
Conventional biochemicals	5
BD Phoenix Gram Negative ID	4
bioMerieux API Rapid 20E	3
Difco Shigella Antiserum Poly Group D	1
BD BBL Shigella Antisera (A-D)	1
Remel Wellcolex Colour Shigella	1
bioMerieux Vitek Slidex Staph	1
BD BBL Crystal Enteric/Nonfermenter	1
Not given	1
TOTAL	161

***Shigella* species**

bioMerieux Vitek 2 GN	10
Siemens (Dade Behring) Negative Combo - any panel	9
bioMerieux Vitek 1 GNI +	3
bioMerieux API 20E	3
BD BBL Crystal Enteric/Nonfermenter	1
Vitek 2 Compact " Biomerieux"	1
TOTAL	27

Specimen source not tested **9**

No enteric pathogens isolated **3**

No pathogens isolated **3**

Total all responses **203**

Additional organisms reported:

<i>Enterococcus</i> species	
Conventional biochemicals	1

Specimen No. 2 – Sputum (Pathogens Only)

This simulated sputum specimen contained *Moraxella catarrhalis*. This organism was identified correctly by all referee laboratories. Of the participating laboratories that processed this specimen, 99% correctly identified this pathogen with 98% of them reporting *Moraxella catarrhalis* and 1% reporting *Moraxella* species.

Streptococcus bovis was included in this specimen as nonpathogenic flora.

Number 2 - Methods of identification used by laboratories reporting:

Moraxella (Branhamella) catarrhalis

Remel RapID NH	62
bioMerieux API NH	36
Siemens (Dade Behring) MicroScan HNID	24
Conventional biochemicals	23
bioMerieux Vitek 2 NH	19
bioMerieux Vitek 1 NHI	12
Remel Catarrhalis Disk	11
Vitek 2 Compact " Biomerieux"	1
Siemens (Dade Behring) Negative Combo - any panel	1
Remel RapID ANA II	1
Remel BactiCard Neisseria	1
BD BBL Crystal Neisseria/Haemophilus	1
Not given	1
TOTAL	193

***Moraxella* species**

bioMerieux Vitek 1 NHI	2
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Alpha-hemolytic *Streptococcus*

Other - Colony morphology, Gram stain and PYR test	1
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Specimen source not tested 7

Total all responses 203

Additional organisms reported:

Streptococcus bovis

Siemens (Dade Behring) Positive Combo - any panel	2
Not given	1

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

This simulated wound specimen was to be cultured both aerobically and anaerobically. It contained *Citrobacter freundii* and *Enterococcus faecalis*.

Citrobacter freundii was identified by 100% of the referee laboratories. Of the participating laboratories that processed this specimen, 99.5% correctly identified this pathogen with approximately 98.5% of them reporting *C. freundii* or *C. freundii* complex and 1.0% reporting *Citrobacter* species.

Enterococcus faecalis was identified by 100% of the referee laboratories. Of the participating laboratories that processed this specimen 98% correctly identified this pathogen with approximately 88% of them reporting *E. faecalis* and 10% reporting *Enterococcus* species.

This specimen did not contain any anaerobic organisms.

Number 3 (Aerobe) - Methods of identification used by laboratories reporting:

Citrobacter freundii

Siemens (Dade Behring) Negative Combo - any panel	74
bioMerieux Vitek 2 GN	59
bioMerieux Vitek 1 GNI +	26
bioMerieux API 20E	24
BD Phoenix Gram Negative ID	5
Conventional biochemicals	2
BD BBL Crystal Enteric/Nonfermenter	2
Vitek 2 Compact "Biomerieux"	1
DuPont Qualicon RiboPrinter	1
Not given	1
TOTAL	195

***Citrobacter freundii* complex**

Siemens (Dade Behring) Negative Combo - any panel	1
bioMerieux Vitek 1 GNI +	1
TOTAL	2

***Citrobacter* species**

Siemens (Dade Behring) Negative Combo - any panel	1
bioMerieux API 20E	1
TOTAL	2

Specimen source not tested 3

Not reported 1

Total all responses 203

Number 3 (Aerobe) - Methods of identification used by laboratories reporting:

Enterococcus faecalis

Siemens (Dade Behring) Positive Combo - any panel	73
bioMerieux Vitek 2 GP	50
bioMerieux Vitek 1 GPI	23
Conventional biochemicals	10
bioMerieux API 20 Strep	8
BD Phoenix Gram Positive ID	5
Remel RapID STR	2
DuPont Qualicon RiboPrinter	1
Vitek 2 Compact "Biomerieux"	1
Polymerase chain reaction	1
Biolog MicroLog Gram Positive	1
Not given	1
TOTAL	176

Enterococcus species

Conventional biochemicals	18
Siemens (Dade Behring) Positive Combo - any panel	1
Remel BactiCard Strep	1
TOTAL	20

Streptococcus, group D

Conventional biochemicals	1
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Streptococcus pneumoniae

bioMerieux Vitek 2 GP	1
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Not reported 2

Specimen source not tested 3

Total all responses 203

No anaerobic organisms 83

Additional organisms reported:

Acinetobacter lwoffii

Siemens (Dade Behring) Negative Combo - any panel	1
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Specimen No. 4 – Cerebrospinal Fluid (All Organisms) and Antibiotic Susceptibility

This simulated cerebrospinal fluid specimen contained *Streptococcus pneumoniae*. This organism was identified correctly by all referee laboratories. Of the participating laboratories that processed this specimen, 99.5% correctly identified this pathogen with 98.9% of them reporting *Streptococcus pneumoniae* and 0.5% reporting alpha-hemolytic *Streptococcus*.

Antimicrobial susceptibility testing was indicated for this specimen. This isolate of *S. pneumoniae* was susceptible to both ceftriaxone and penicillin.

Number 4 - Methods of identification used by laboratories reporting:

Streptococcus pneumoniae

Conventional biochemicals	104
bioMerieux Vitek 2 GP	26
Siemens (Dade Behring) Positive Combo - any panel	16
bioMerieux Vitek 1 GPI	13
BD BBL Pneumoslides	12
bioMerieux API 20 Strep	6
BD Phoenix Gram Positive ID	4
Remel Phadebact Pneumococcus Test	2
BACTUS Phadebact Pneumococcus Test	2
Multiple systems	1
GenProbe AccuProbe Strep pneumoniae	1
Remel RapID STR	1
Not given	1
TOTAL	189

Alpha-hemolytic *Streptococcus*

Conventional biochemicals	1
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Streptococcus, Group A (S. pyogenes)

Conventional biochemicals	1
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Specimen source not tested **12**

Total all responses **203**

Results of Antimicrobial Susceptibility Testing

Streptococcus pneumoniae with Ceftriaxone

Result	Method (# labs)	MIC – ug/ml	Zone - mm	# of Labs
Susceptible	MicroScan (52)	≤0.25		38
		<0.25		9
		0.5		2
		≤0.5		1
		≤0.03		1
		Not given		1
	Etest (55)	0.016		15
		0.032		12
		0.023		11
		0.008		2
		0.012		2
		0.02		2
		0.047		2
		≤.016		1
		≤0.023		1
		0.03		1
		≤0.032		1
		≤0.06		1
		0.06		1
		0.094		1
		≤1.0		1
		Not given		1
	bioMerieux Vitek 2 (23)	≤0.06		22
		<1.06		1
	Trek Sensititre (7)	≤0.12		5
		≤0.03		1
		≤0.06		1
	BD Phoenix (3)	≤0.0625		3
	Not given (1)	0.012		1
	Siemens Microstrep Plus Panel Type 1 (1)	<0.25		1
	Agar dilution (1)	≤0.5		1
	Disk diffusion (10)		35	2
			42	2
			30	1
			32	1
		34	1	
		39	1	
		43	1	
		Not given	1	

Test not performed on antibiotic	18
Test not performed on source	16
Test not performed on organism	14
Do not offer susceptibility testing	2
Total all responses	203

Streptococcus pneumoniae with Penicillin

Result	Method (# labs)	MIC – ug/ml	Zone - mm	# of Labs
Susceptible	Microscan (53)	≤0.03		40
		<0.03		9
		0.06		2
		≤0.25		1
		Not given		1
	Etest (65)	0.032		18
		0.023		14
		0.047		7
		0.016		7
		0.012		4
		0.03		3
		<0.016		2
		≤0.016		2
		0.064		2
		0.02		1
		≤0.032		1
		0.034		1
		≤0.06		1
		0.06		1
		Not given		1
	bioMerieux Vitek 2 (21)	≤0.06		20
		<0.06		1
	BD Phoenix (3)	≤0.03125		2
		0.0625		1
	Trek Sensititre (6)	≤0.03		5
		≤0.015		1
	Agar dilution (1)	≤0.06		1
	Siemens Microstrep Plus Panel Type 1 (1)	<0.03		1
	Not given (1)	0.016		1
	Disk diffusion (17)		22	2
			25	2
			40	2
			21	1
		24	1	
		26	1	
		27	1	
		29	1	
		33	1	
		35	1	
		38	1	
		43	1	

			44	1
			Not given	1
Intermediate	bioMerieux Vitek 2 (1)	0.12		1
Resistant	Trek Sensititre (1)	0.12		1
	Etest (1)	≤0.12		1
	bioMerieux Vitek 2 (1)	0.12		1
	Disk diffusion (1)		30	1
Test not performed on source				15
Test not performed on organism				9
Test not performed on antibiotic				4
Do not offer susceptibility testing				2
Total all responses				203

Specimen No. 5 – Throat (Pathogens Only)

This simulated throat culture contained Group A *Streptococcus*. This organism was correctly identified by all referee laboratories. Of the participating laboratories that processed this specimen, approximately 97% reported Group A *Streptococcus*.

Staphylococcus epidermidis and *Neisseria mucosa* were included in this specimen as nonpathogenic flora.

Number 5 - Methods of identification used by laboratories reporting:

Group A *Streptococcus*

Conventional biochemicals	48
BD BBL Streptocard	42
DPC PathoDX Strep Grouping	21
Murex Streptex	18
bioMerieux Vitek 2 GP	15
Siemens (Dade Behring) Positive Combo - any panel	10
Remel Streptex	8
Pro-lab Diagnostics Streptococcal Grouping Latex Kit	8
bioMerieux Vitek 1 GPI	6
Remel PathoDx Strep Grouping Kit	6
StrepPRO Grouping Kit (Hardy Diagnostics)	5
bioMerieux API 20 Strep	3
Boule Diagnostics Phadebact Streptococcus	2
Prolex Streptococcal Grouping Latex kit	1
Oxoid Streptex	1
Remel RapID STR	1
Remel BactiCard Strep	1
BD Phoenix Gram Positive ID	1
BD BBL Crystal Gram Positive	1
Not given	1
TOTAL	199

Not reported 1

Specimen source not tested 3

Total all responses 203

Additional organisms reported:

Neisseria meningitidis

Remel BactiCard Neisseria 1

Staphylococcus epidermidis

bioMerieux Vitek 2 GP 1

Enterococcus faecalis

bioMerieux Vitek 2 GP 1

Citrobacter freundii

bioMerieux Vitek 2 GN 1

Chlamydia – cervical swab for direct testing

This simulated cervical swab was provided to laboratories that test for *Chlamydia* using direct detection methods. This sample contained non-viable organisms and was not suitable for laboratories performing *Chlamydia* culture. Currently, 103 out of 203 participating laboratories (50.7%) perform direct detection testing for *Chlamydia*.

This sample was positive for *Chlamydia* and was reported as such by 100% of the participating laboratories that tested this specimen.

Test kits used by laboratories reporting this specimen as:

Positive for *Chlamydia trachomatis*

Gen-Probe Aptima Combo 2	33
Gen-Probe PACE 2 CT or CT/GC	30
BD ProbeTec ET CT or CT/GC	21
Roche Diagnostics COBAS AMPLICOR CT/NG	10
bioMerieux VIDAS	4
real-time PCR	1
Roche Diagnostics AMPLICOR CT/NG	1
Quidel QuickVue Chlamydia	1
Digene Hybrid Capture hc2 CT/GC	1
BioRad Chlamydia Microplate EIA	1
TOTAL	103

Direct Antigen Detection

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

This specimen was positive for Group A *Streptococcus*. Of the participating laboratories that processed this specimen, 99% reported it as positive.

Test kits used by laboratories reporting this specimen as:

Positive for Group A *Streptococcus*:

Genzyme OSOM Ultra Strep A	19
BioStar/Inverness Medical Acceava Strep A	16
BD Directigen EZ Strep A	16
Quidel QuickVue + Strep A	7
Abbott Signify Strep A Dipstick	5
Fisher Sure-Vue Strep A Lateral Flow Test	4
Stanbio QuStick Strep A Rapid Strip Test	3
Quidel QuickVue Inline Strep A	3
Meridian Bioscience ImmunoCard STAT Strep A	3
GenProbe Group A Strep	3
Fisher Sure-Vue SELECT Strep A	3
Cardinal Health SP Brand Strep A Cassette	3
BD Chek Strep A	3
Remel PathoDx Strep A	2
Quidel QuickVue Dipstick Strep A	2
Fisher Sure-Vue Signature Strep A Test	2
Cardinal Health SP Brand Strep A Dipstick	2
Other - BD Directigen EZ Group A Strep	1
Wampole Clearview Strep A Extract	1
Sacks Medical Corp RefuAH Strep A	1
Polymedco Poly Stat Strep A	1
BTNX Rapid Response	1
BioStar Strep A OIA Max	1
Beckman Coulter Icon DS Strep A	1
Beckman Coulter Icon SC Strep A	1
Abbott Signify Strep A Cassette	1
TOTAL	105

Negative for Group A *Streptococcus*:

Abbott Signify Strep A Cassette	1
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Total all responses **106**

BACTERIAL IDENTIFICATION BY PARTICIPATING LABORATORIES

SPECIMEN NUMBER 1	<u>Number</u>	<u>Reported</u>	<u>%</u>
<i>Shigella sonnei</i> , group D	161		79.3
<i>Shigella</i> species	27		13.3
No enteric pathogens isolated	3		1.5
No pathogens isolated	3		1.5
Specimen source not tested	9		4.4

SPECIMEN NUMBER 2

<i>Moraxella (Branhamella) catarrhalis</i>	193		95.1
<i>Moraxella</i> species	2		1.0
Alpha-hemolytic <i>Streptococcus</i>	1		0.5
Specimen source not tested	7		3.4

SPECIMEN NUMBER 3 – Aerobic organism #1

<i>Citrobacter freundii</i>	195		96.1
<i>Citrobacter freundii</i> complex	2		1.0
<i>Citrobacter</i> species	2		1.0
Not reported	1		0.5
Specimen source not tested	3		1.5

SPECIMEN NUMBER 3 – Aerobic organism #2

<i>Enterococcus faecalis</i>	176		86.7
<i>Enterococcus</i> species	20		9.9
<i>Streptococcus</i> , group D	1		0.5
<i>Streptococcus pneumoniae</i>	1		0.5
Not reported	2		1.0
Specimen source not tested	3		1.5

SPECIMEN NUMBER 4

<i>Streptococcus pneumoniae</i>	189		93.1
Alpha-hemolytic <i>Streptococcus</i>	1		0.5
<i>Streptococcus</i> , group A (<i>S. pyogenes</i>)	1		0.5
Specimen source not tested	12		5.9

SPECIMEN NUMBER 5

<i>Streptococcus</i> , group A (<i>S. pyogenes</i>)	199	98
Not reported	1	0.5
Specimen source not tested	3	1.5

CHLAMYDIA – DIRECT DETECTION

Positive for <i>Chlamydia trachomatis</i>	103	100.0
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GROUP A STREPTOCOCCUS - DIRECT DETECTION

Positive for Group A <i>Streptococcus</i>	105	99.1
Negative for Group A <i>Streptococcus</i>	1	0.9