

BACTERIOLOGY PROFICIENCY TESTING PROGRAM

Comprehensive Category

September 6, 2011

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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.

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 Center for Medicare & Medicaid Services guidelines as specified in the regulations of CLIA '88. One-half of our samples require identification of all organisms present. The other half require 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 adherence to 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.

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

Online Instructions and Worksheets

Hard copies of instructions and worksheets will no longer be mailed with proficiency test samples. 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>. Please bookmark this site to easily find the directions for the mailouts.

Bacteriology Questionnaires

Please update your questionnaire whenever there is a change in your laboratory's reporting policy. Proficiency test results are graded in accordance with information on the questionnaire so be certain that this information is accurate. If your questionnaire indicates that your laboratory reports an organism to the species level then you must report to the species level on the proficiency test to receive credit. 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

A few laboratories are reporting both an MIC and a zone diameter for susceptibility results. Please only report the appropriate number for the method you have indicated. Do not include a zone diameter if you report using an MIC method.

When entering results into EPTRS if you can't find what you want in the drop down list you can select "other" and a text box appears for you to type in your response.

NYS Reportable Disease List

The New York State Reportable Disease List has been updated and can be found at: <http://www.wadsworth.org/labcert/regaffairs/clinical/commndiseaseguide.pdf>

Samples for Remediation

We maintain a limited number of samples for remediation purposes. If your laboratory had difficulty isolating or identifying the organisms in a sample you can contact us after the event for additional samples. Contact us either by email or phone and provide your PFI number and the sample(s) needed. They will be shipped to you within a week.

September 6, 2011 Test Event

Number of Participating Laboratories:

Receiving specimens 199
Returning results 198

Grade Distribution		
Score	Number	Percent
100%	157	79
90 – 99%	15	8
80 – 89%	20	10
<80%	6	3

BACTERIOLOGY - COMPREHENSIVE

September 6, 2011

ANSWER KEY

Specimen Number 1 - Stool (Pathogens only)

Vibrio cholerae

Specimen Number 2 - Sputum (Pathogens only)

Streptococcus pneumoniae

Legionella pneumophila

Specimen Number 3 - Blood - Aerobic / Anaerobic (All organisms)

Clostridium perfringens

Pseudomonas aeruginosa

Specimen Number 4 - Urine (All organisms) and Antibiotic Susceptibility

Enterococcus faecalis

Susceptibility to: Daptomycin - susceptible

Vancomycin – susceptible

Specimen Number 5 - Throat (Pathogens only)

Streptococcus pyogenes

***Chlamydia* Direct Detection - Cervix**

Positive for *Chlamydia trachomatis*

Group A *Streptococcus* Direct Antigen Detection - Throat

Positive for Group A *Streptococcus*

REFEREE LABORATORY RESULTS

Specimen Number	Referee Laboratory Responses	Percent*
1	<i>Vibrio cholerae</i>	80
	<i>Vibrio</i> species	10
	No pathogens isolated	10
2	<i>Streptococcus pneumoniae</i>	90
	Not reported	10
	<i>Legionella pneumophila</i>	20
	<i>Legionella</i> species	30
	Do not test for <i>Legionella</i>	50
3	<i>Clostridium perfringens</i>	90
	<i>Clostridium</i> species	10
	<i>Pseudomonas aeruginosa</i>	100
4	<i>Enterococcus faecalis</i>	90
	<i>Enterococcus</i> species	10
	Daptomycin - susceptible	100
	Vancomycin - susceptible	100
5	<i>Streptococcus</i> , Group A	100

* Based on responses of 10 referee laboratories

Specimen Number 1 - Stool (Pathogens Only)

This simulated stool specimen contained *Vibrio cholerae*. Eight of the referee laboratories reported *V. cholerae* and 1 reported *Vibrio* species. Of the participating laboratories that processed this specimen, 76% reported *Vibrio cholerae* and an additional 12% reported *Vibrio* species.

If your laboratory's test menu includes *Vibrio* and you did not isolate this organism you should re-evaluate your testing protocol. Additional samples are available if you would like to re-test this sample.

Vibrio species should be referred to reference laboratories for confirmation, serology, speciation, and toxin testing where appropriate. The New York State and New York City "Reporting of Communicable Diseases" document requests that all *Vibrio* isolates from New York State patients be submitted to the appropriate public health laboratory for confirmation.

Methods of identification used by laboratories to identify *Vibrio cholerae*

Result	Method	# Labs
<i>Vibrio cholerae</i>	bioMerieux Vitek 2 GN	53
	Siemens (Dade Behring) Negative Combo - any panel	46
	bioMerieux API 20E	22
	bioMerieux Vitek 1 GNI +	7
	bioMerieux API Rapid 20E	3
	bioMerieux API 20NE	3
	BD Phoenix Gram Negative ID	3
	16s rDNA sequencing	2
	Other - Microscan 96 Plus	1
	Remel RapID NF Plus	1
	Conventional biochemicals	1
<i>Vibrio</i> species	Siemens (Dade Behring) Negative Combo - any panel	6
	bioMerieux Vitek 2 GN	4
	BD Phoenix Gram Negative ID	1
No enteric pathogens isolated		25
No <i>Salmonella</i> , <i>Shigella</i> or <i>Campylobacter</i> isolated		1
No <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>E.coli</i> O157:H7 or <i>Listeria</i> isolated		1
No <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Yersinia</i> , or <i>E. coli</i> O157 isolated		1
No <i>Salmonella</i> , <i>Shigella</i> , <i>Yersinia</i> or <i>Campylobacter</i>		1
Specimen source not tested		13
<i>Vibrio fluvialis</i>	bioMerieux Vitek 2 GN	2
<i>Salmonella</i> serotype Choleraesuis	bioMerieux API 20E	1
Additional organisms reported		
<i>Escherichia coli</i>	bioMerieux Vitek 2 GN	2
<i>Morganella morganii</i> ss. <i>morganii</i>	bioMerieux Vitek 2 GN	2

Specimen Number 2 – Sputum (Pathogens only)

This simulated sputum specimen contained *Streptococcus pneumoniae* and *Legionella pneumophila*. The *S. pneumoniae* was identified by 90% of the referee laboratories and 99% of the participants. The *Legionella* was reported by all referee laboratories (5) that test for it, with 40% of them reporting *L. pneumophila* and 60% reporting *Legionella* species. All of the participating laboratories that process sputum for *Legionella* reported either *L. pneumophila* (59%) or *Legionella* species (41%).

Methods of identification used by laboratories to identify *S. pneumoniae*

Result	Method	# Labs
<i>Streptococcus pneumoniae</i>	Conventional biochemicals	99
	bioMerieux Vitek 2 GP	44
	Siemens (Dade Behring) Positive Combo - any panel	14
	BD BBL Pneumoslide	11
	bioMerieux Vitek 1 GPI	7
	bioMerieux API 20 Strep	4
	Phadebact Pneumococcus Test	3
	Remel RapID STR	2
	BD Phoenix Gram Positive ID	2
	Siemens Microstrep Plus Panel	1
	Biomerieux Vitek 2 Compact	1
	Not given	1
Specimen source not tested		9

Methods of identification used by laboratories to identify *L. pneumophila*

Result	Method	# Labs
<i>Legionella pneumophila</i>	Conventional biochemicals	10
	DFA	6
	BioRad Monofluo Direct Fluorescent Antibody	5
	16s rDNA sequencing	2
	Bio Rad Monofluo <i>Legionella pneumophila</i> IFA test kit	1
	Scimedix DFA	1
	Fluorescence Antibody	1
	Fluorescent monoclonal antibody	1
	<i>Legionella</i> species	Conventional biochemicals
Zeus Scientific <i>Legionella</i> DFA Test System		2
Not given		1
Binax <i>Legionella</i> antigen		1
Polymerase chain reaction		1
Conventional biochemicals		1
Presumptive <i>Legionella</i> species.	Conventional biochemicals	4
<i>Legionella</i> not reported/not tested for		149

Specimen Number 3 - Blood - Aerobic/Anaerobic (All Organisms)

This sample contained *Clostridium perfringens* and *Pseudomonas aeruginosa*. *C. perfringens* was identified by 90% of the referee labs. One referee laboratory reported *Clostridium* species. Of the participants 92% of laboratories that processed this specimen and test for anaerobes identified this organism as *C. perfringens*. Another 2% reported *Clostridium* species.

All referee laboratories reported *P. aeruginosa* as did 99% of the participants.

Methods of identification used by laboratories to identify *Clostridium perfringens*

Result	Method	# Labs
<i>Clostridium perfringens</i>	Remel RapID ANA II	89
	bioMerieux Vitek 2 ANC	37
	Siemens (Dade Behring) MicroScan Rapid Anaerobe	15
	bioMerieux API 20A	14
	Conventional biochemicals	4
	bioMerieux Vitek 1 ANI	4
	BD BBL Crystal Anaerobe	1
	16s rDNA sequencing	1
<i>Clostridium</i> species	Remel RapID ANA II	1
	Conventional biochemicals	1
	bioMerieux API 20A	1
	bioMerieux Vitek 2 ANC	1
Anaerobic gram positive bacilli	Conventional biochemicals	2
No anaerobic organisms		10
No <i>Bifidobacter</i> species isolated		1
<i>Clostridium innocuum</i>	Remel RapID ANA II	2
<i>Peptostreptococcus magnus</i>	bioMerieux Vitek 2 ANC	1
Specimen source not tested		9
Do not ID anaerobes		4

Methods of identification used by laboratories to identify *Pseudomonas aeruginosa*

Result	Method	# Labs
<i>Pseudomonas aeruginosa</i>	bioMerieux Vitek 2 GN	75
	Siemens (Dade Behring) Negative Combo - any panel	71
	bioMerieux API 20E	10
	bioMerieux Vitek 1 GNI +	9
	bioMerieux API 20NE	7
	Conventional biochemicals	6
	BD Phoenix Gram Negative ID	5
	Other - Microscan 96 Plus	1
	Siemens (Dade Behring) Positive Combo - any panel	1
	Remel RapID NF Plus	1
	Polymerase chain reaction	1
	BD BBL Crystal Enteric/Nonfermenter	1
Not reported		1
Specimen source not tested		9

Specimen Number 4 - Urine (All organisms) and Antibiotic Susceptibility

Ninety percent of the referee laboratories reported *Enterococcus faecalis*; 10% reported *Enterococcus* species. *E. faecalis* was identified by 87% of the participants with an additional 10% reporting *Enterococcus* species.

All laboratories that tested this isolate for antimicrobial susceptibility found it susceptible to both vancomycin and daptomycin.

Methods used by laboratories reporting *Enterococcus faecalis*

Result	Method	# Labs
<i>Enterococcus faecalis</i>	bioMerieux Vitek 2 GP	72
	Siemens (Dade Behring) Positive Combo - any panel	67
	Conventional biochemicals	9
	bioMerieux Vitek 1 GPI	7
	BD Phoenix Gram Positive ID	5
	Remel RapID STR	3
	bioMerieux API 20 Strep	3
	Siemens Positive ID3 Panel	1
	Biomerieux Vitek 2 Compact	1
	Polymerase chain reaction	1
<i>Enterococcus</i> species	Conventional biochemicals	16
	PML-Identicult AE	1
	Siemens (Dade Behring) Positive Combo - any panel	1
	bioMerieux Vitek 2 GP	1
	BD Phoenix Gram Positive ID	1
<i>Enterococcus faecium</i>	bioMerieux Vitek 1 GPI	3
	bioMerieux API 20 Strep	1
<i>Enterobacter</i> species	Conventional biochemicals	2
Specimen source not tested		3

Methods used for susceptibility testing - Vancomycin

Result	Method	# Labs	Zone	MIC
Susceptible	bioMerieux Vitek 2	47		=1
		22		<=0.5
		1		Not given
		1		<0.5
	MicroScan	38		=1
		19		<=2
		4		<2
		3		=0.5
		2		<=0.5
		1		Not given
		1		<=4
		1		4
		E-test	5	
	3			=1.5
	1			0.75
	1			=0.5
		bioMerieux Vitek 1	6	

		2		<0.5
BD Phoenix		5		<=0.5
		1		<=1
Trek Sensititre		3		=0.5
		2		<=1.0
Agar dilution		1		<=2
BBL Vancomycin Screen Agar		1		Not given
Vitek 2 Compact		1		1
Not given		1		<=0.5
		1		<=2
		1		=1
Disk diffusion		4	20	
		3	21	
		2	17	
		1	19	
		1	22	
		1	18	
Test not performed on antibiotic/source/organism		5		
Susceptibility testing not performed		4		

Methods used for susceptibility testing - Daptomycin

Result	Method	# Labs	MIC	
Susceptible	MicroScan	29	=1	
		4	<=0.5	
		2	=0.5	
		1	<=1	
		1	<=4	
		1	2	
		1	Not given	
		1	=4	
	E-test	13	=1.0	
		7	=1.5	
		4	=0.75	
		3	=0.5	
		2	=2	
		1	<=4	
		1	Not given	
	bioMerieux Vitek 2	8	=1	
		5	=0.5	
		1	<=2	
	BD Phoenix	3	<=1	
		2	=2.0	
	Trek Sensititre	2	=1.0	
		2	=0.5	
		1	<=0.5	
	Not given	1	<=1	
		1	<=0.5	
	Test not performed on antibiotic/source/organism		97	
	Susceptibility testing not performed		4	

Specimen Number 5 - Throat (Pathogens Only)

All referee laboratories and all participants reported *Streptococcus*, Group A (*S. pyogenes*) in this throat sample.

Methods of identification used by laboratories reporting *S. pyogenes*

Result	Method	# Labs
<i>Streptococcus</i> , group A (<i>S. pyogenes</i>)	Conventional biochemicals	47
	Remel Strepex	38
	BD BBL Streptocard	32
	DPC PathoDX Strep Grouping	28
	bioMerieux Vitek 2 GP	18
	Siemens (Dade Behring) Positive Combo - any panel	7
	Pro-Lab-Streptococcus Grouping	5
	bioMerieux Vitek 1 GPI	4
	bioMerieux API 20 Strep	3
	Boule Diagnostics Phadebact Streptococcus	2
	Hardy Diagnostics StrepPRO	2
	Not given	1
	Intermedico Medico DX Kit insert	1
	Oxoid Streptococcal grouping	1
	StrepPRO Grouping kit	1
	Prolex Streptococcal Grouping Latex Kit	1
Remel RapID STR	1	
BD Phoenix Gram Positive ID	1	
Specimen source not tested		5

Additional organisms reported		
Alpha-hemolytic <i>Streptococcus</i>	Conventional biochemicals	2

Chlamydia - Cervix for Direct Detection Methods

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.

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

Test kits used by laboratories processing this specimen

Method	# Labs
Gen-Probe Aptima Combo 2	39
Gen-Probe PACE 2 CT or CT/GC	20
BD ProbeTec ET CT or CT/GC	20
Roche Diagnostics COBAS AMPLICOR CT/NG	5
Roche Diagnostics AMPLICOR CT/NG	3
bioMerieux VIDAS	3
Quidel QuickVue Chlamydia	2
Digene Hybrid Capture hc2 CT/GC	2
Real-time PCR	1
Abbott Real Time PCR	1

Group A Streptococcus – Throat Swab for Direct Detection Methods

This specimen was reported as positive for Group A *Streptococcus* by 100% of the participating laboratories that processed it.

Test kits used by laboratories processing this specimen

Method	# Labs
Genzyme OSOM Ultra Strep A	22
BD Directigen EZ Strep A	17
BioStar/Inverness Medical Acceava Strep A	14
Quidel QuickVue + Strep A	9
Meridian Bioscience ImmunoCard STAT Strep A	5
Abbott Signify Strep A Dipstick	5
Fisher Sure-Vue Signature Strep A Test	4
BD Chek Group A Strep	4
Fisher Sure-Vue Strep A Lateral Flow Test	3
Cardinal Health SP Brand Strep A Dipstick	3
Stanbio QuStick Strep A Rapid Strip Test	2
Quidel QuickVue Dipstick Strep A	2
BD Chek Group A Strep	1
Gen-Probe GASD	1
Fisher Sure-Vue Strep A Test	1
Remel PathoDX Strep A Latex Agglutination Kit	1
SMC RefuAH Strep A Kit	1
BTNX Rapid Response	1
GenProbe Group A	1
Quidel QuickVue Inline Strep A	1
Polymedco Poly Stat Strep A	1
Fisher Sure-Vue SELECT Strep A	1
Clearview Strep A Exact II Cassette	1
Cardinal Health SP Brand Strep A Cassette	1
Beckman Coulter Icon DS Strep A	1
Beckman Coulter Icon SC Strep A	1

BACTERIAL IDENTIFICATION BY PARTICIPATING LABORATORIES

	<u>Number Reported</u>	<u>%</u>
SPECIMEN NUMBER 1 (Stool)		
<i>Vibrio cholerae</i>	142	71.7
<i>Vibrio</i> species	11	5.6
No enteric pathogens isolated	25	12.6
No <i>Salmonella</i> , <i>Shigella</i> or <i>Campylobacter</i> isolated	1	0.5
No <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>E. coli</i> O157:H7 or <i>Listeria</i> isolated	1	0.5
No <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Yersinia</i> , or <i>E. coli</i> O157 isolated	1	0.5
No <i>Salmonella</i> , <i>Shigella</i> , <i>Yersinia</i> or <i>Campylobacter</i> - Possible <i>Vibrio</i>	1	0.5
<i>Vibrio fluvialis</i>	2	1.0
<i>Salmonella</i> serotype <i>Cholerasuis</i>	1	0.5
Specimen source not tested	13	6.6
SPECIMEN NUMBER 2 (Sputum)		
<i>Streptococcus pneumoniae</i>	189	95.5
<i>Legionella pneumophila</i>	27	13.6
<i>Legionella</i> species	18	9.1
Presumptive <i>Legionella</i> species	4	2.0
Specimen source not tested	9	4.5
<i>Legionella</i> not reported/not tested for	149	75.2
SPECIMEN NUMBER 3 (Blood) – Anaerobe		
<i>Clostridium perfringens</i>	165	83.3
<i>Clostridium</i> species	4	2.0
Anaerobic gram positive bacilli	2	1.0
No anaerobic organisms	10	5.0
No <i>Bifidobacter</i> species isolated	1	0.5
<i>Clostridium innocuum</i>	2	1.0
<i>Peptostreptococcus magnus</i>	1	0.5
Specimen source not tested	9	4.5
Do not ID anaerobes	4	2.0
SPECIMEN NUMBER 3 (Blood) – Aerobe		
<i>Pseudomonas aeruginosa</i>	188	94.9
Not reported	1	0.5
Specimen source not tested	9	4.5
SPECIMEN NUMBER 4 (Urine)		
<i>Enterococcus faecalis</i>	169	85.3
<i>Enterococcus</i> species	20	10.0
<i>Enterococcus faecium</i>	4	2.0
<i>Enterobacter</i> species	2	1.0
Specimen source not tested	3	1.5
SPECIMEN NUMBER 5 (Throat)		
<i>Streptococcus</i> , group A (<i>S. pyogenes</i>)	193	97.5
Specimen source not tested	5	2.5
CHLAMYDIA – DIRECT DETECTION (Genital)		
Positive for <i>Chlamydia trachomatis</i>	96	100
GROUP A STREPTOCOCCUS - DIRECT DETECTION (Throat)		
Positive for Group A <i>Streptococcus</i>	104	100