

# **BACTERIOLOGY PROFICIENCY TESTING PROGRAM**

## **General Category**

**September 16, 2003**

This report summarizes the results of the proficiency test administered September 16, 2003 to laboratories in the General Bacteriology category.

If you have any questions or comments, please contact either:

Mrs. Deborah Baker  
Dr. Wendy Archinal  
Dr. Ronald Limberger

Phone: (518) 474-4177  
Email: [bacti@wadsworth.org](mailto:bacti@wadsworth.org)



## TABLE OF CONTENTS

	<u>Page</u>
General Information on the Bacteriology PT Program	1
Notes of Interest	3
Participating Laboratory Statistics / Grade Distribution	5
Answer Key	7
Referee Laboratory Results	9
Critique	
Specimen No. 1	11
Specimen No. 2	13
Specimen No. 3	15
Specimen No. 4	17
Antibiotic Susceptibility Results	19
Specimen No. 5	23
Educational Specimen	25
<i>Chlamydia</i> Specimen	31
Direct Antigen Detection	33
Summary of Results Reported by Participating Laboratories	35



# ***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 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 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%.

## *Notes of Interest*

### **1. Updated Susceptibility Standards**

The following document is available from NCCLS:

M100-S14 (2004) Performance Standards for Antimicrobial Susceptibility Testing; Fourteenth Informational Supplement. The cost is \$85.00 for members / \$185.00 for nonmembers.

Contact information for NCCLS:           940 West Valley Road, Suite 1400  
Wayne, PA 19087-1898  
Phone: (610) 688-0100  
website: [www.nccls.org](http://www.nccls.org)

### **2. Backup Testing of Negative Rapid Strep Results**

The Food Drug Administration has issued recommendations regarding backup testing on specimens, which test negative for Group A *Streptococcus* by rapid methods. Previously, the American Academy of Pediatrics had recommended culture confirmation of negative results obtained by Rapid Strep kits on pediatric patients if the clinical presentation was indicative of streptococcal pharyngitis. The FDA has now extended this recommendation to specimens obtained from symptomatic adults as well. This information is available on the following website: [www.fda.gov/cdrh/oivd/laboratory.html#tip7](http://www.fda.gov/cdrh/oivd/laboratory.html#tip7)

### **3. FDA Newsletter**

Free e-mail newsletters containing updates from the FDA are available from the division of the Center for Devices and Radiological Health. Subscriptions can be activated by accessing the following website: [www.fda.gov/cdrh/subscribe.html](http://www.fda.gov/cdrh/subscribe.html)



**SEPTEMBER 16, 2003 TEST EVENT**

**Number of Participating Laboratories:**

**Receiving specimens      251**  
**Returning results         249      (99.2%)**

Grade Distribution		
Score	Number	Percent
100	199	79.9
90 - 99	21	8.4
80 - 89	20	8.0
70 - 79	5	2.0
60 - 69	1	0.4
< 60	3	1.2



**BACTERIOLOGY - GENERAL**  
**SEPTEMBER 16, 2003**  
**ANSWER KEY**

**Specimen No. 1 - Stool (Pathogens Only)**

*Campylobacter jejuni*

**Specimen No. 2 – Throat (Pathogens Only)**

No Pathogens Isolated

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

*Bacteroides fragilis*

*Klebsiella pneumoniae*

**Specimen No. 4 – Sputum (Pathogens Only) and Antibiotic Susceptibility**

*Haemophilus influenzae*

Susceptibility of *H. influenzae* to: Ampicillin – Susceptible

Cefotaxime - Susceptible

**Specimen No. 5 – Urine (All Organisms)**

*Citrobacter freundii*

**Educational – Blood (All Organisms)**

*Oligella ureolytica*

***Chlamydia* Specimen**

Negative for *Chlamydia trachomatis*

**Direct Antigen Detection**

A (Throat)

Negative for Group A *Streptococcus*

B (CSF)

Negative for bacterial antigens



## REFEREE LABORATORY RESULTS

Specimen Number	Referee Laboratory Responses	Percent <sup>*</sup>
1	<i>Campylobacter jejuni</i>	100
2	No Pathogens Isolated	100
3	<i>Bacteroides fragilis</i>	90
	<i>Bacteroides caccae</i>	10
	<i>Klebsiella pneumoniae</i>	100
4	<i>Haemophilus influenzae</i>	100
5	<i>Citrobacter freundii</i>	80
	<i>Citrobacter freundii</i> complex	20

<sup>\*</sup> Based on responses of 10 referee laboratories



## ***Specimen Number 1 - Stool (Pathogens Only)***

This simulated stool specimen contained *Campylobacter jejuni*. All referee laboratories identified this organism. Of the participating laboratories that culture stool specimens for *Campylobacter*, approximately 97% isolated the organism from this test specimen. Of these, 76% identified the isolate as *Campylobacter jejuni*, while an additional 20% did not identify the organism to the species level and reported '*Campylobacter* species'. Approximately 3% of participants failed to isolate this pathogen and reported that the specimen did not contain any enteric pathogens.

Additional organisms included in this specimen as normal flora were *Enterobacter cloacae* and *Enterococcus faecalis*.

### **Methods of identification used by laboratories reporting:**

#### ***Campylobacter jejuni***

Conventional biochemicals	153
PANBIO Campy latex	4
Two or more methods	3
<b>TOTAL</b>	<b>160</b>

#### ***Campylobacter* species**

Conventional biochemicals	41
PANBIO Campy latex	4
Two or more methods	1
<b>TOTAL</b>	<b>46</b>

**Do not process stool cultures** 15

**Do not test for *Campylobacter*** 10

**No Enteric Pathogens / Not reported** 7

#### ***Campylobacter jejuni ssp. jejuni***

Conventional biochemicals	4
Two or more methods	1
<b>TOTAL</b>	<b>5</b>

#### **Presumptive *Campylobacter jejuni***

Conventional biochemicals	2
---------------------------	---

#### **Presumptive *Campylobacter* species**

Conventional biochemicals	2
---------------------------	---

#### ***Campylobacter coli***

Conventional biochemicals	1
---------------------------	---

#### ***Campylobacter jejuni* group**

Conventional biochemicals	1
---------------------------	---



## ***Specimen No. 2 – Throat (Pathogens Only)***

This simulated throat specimen did not contain any pathogenic organisms. All referee laboratories reported that this specimen was negative for pathogens as did 99% of participating laboratories that processed this specimen.

The organisms included in this specimen were *Streptococcus sanguis*, *Corynebacterium xerosis* and *Neisseria subflava*.

<b>No Pathogens Isolated / Normal flora</b>	<b>218</b>
<b>No beta hemolytic <i>Streptococcus</i></b>	<b>14</b>
<b>No group A <i>Streptococcus</i></b>	<b>10</b>
<b>Do not process throat specimens</b>	<b>5</b>
<b><i>Neisseria gonorrhoeae</i></b>	<b>2</b>

<b>Additional organisms reported in Specimen 2:</b> <i>Bacillus</i> species – unable to rule out <i>B. anthracis</i>	<b>1</b>
---	----------



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

This simulated blood specimen, which was for both aerobic and anaerobic culture, contained *Bacteroides fragilis* and *Klebsiella pneumoniae*.

*Bacteroides fragilis* was identified by 90% of the referee laboratories. Approximately 82% of the laboratories that identify anaerobic organisms from blood cultures reported *Bacteroides fragilis*. An additional 6% identified the isolate as a member of the *Bacteroides fragilis* group and 3% reported '*Bacteroides* species'. Approximately 3% of participating laboratories failed to isolate this organism.

*Klebsiella pneumoniae* was correctly identified by all referee laboratories and by all participants that process blood cultures.

#### **Methods of identification used by laboratories reporting:**

##### ***Bacteroides fragilis***

Remel RapID ANA II	88
bioMerieux Vitek API 20A	33
bioMerieux Vitek ANI	32
Dade Behring MicroScan Rapid Anaerobe	17
BBL Crystal Anaerobe	6
Two or more methods	5
bioMerieux Vitek API Rapid ID 32A	4
Conventional biochemicals	3
BBL Sceptor	1
MIDI, Inc. Sherlock Microbial ID System	1
16S rDNA sequencing	1
No method indicated	1
<b>TOTAL</b>	<b>192</b>

##### ***Bacteroides fragilis* group**

Remel RapID ANA II	8
Conventional biochemicals	4
bioMerieux Vitek ANI	2
bioMerieux Vitek API 20A	1
<b>TOTAL</b>	<b>15</b>

##### ***Bacteroides* species**

Remel RapID ANA II	4
bioMerieux Vitek ANI	2
bioMerieux Vitek API 20A	1
Dade Behring MicroScan Rapid Anaerobe	1
<b>TOTAL</b>	<b>8</b>

**Do not isolate anaerobes** 8

**Do not process specimen source** 7

<b>Not reported</b>	<b>7</b>
<i>Bacteroides caccae</i> Remel RapID ANA II	<b>3</b>
<b>Anaerobic gram negative bacillus</b>	<b>2</b>
<i>Bacteroides distasonis</i> Remel RapID ANA II	<b>2</b>
<i>Prevotella loescheii</i> Remel RapID ANA II	<b>2</b>
<b><i>Bacteroides</i> (no further ID)</b> Two or more methods	<b>1</b>
<i>Bacteroides ovatus</i> Dade Behring MicroScan Rapid Anaerobe	<b>1</b>
<b>No <i>Bifidobacterium</i> isolated</b>	<b>1</b>

---

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

<i>Klebsiella pneumoniae</i> Dade Behring MicroScan Gram Negative ID	<b>80</b>
bioMerieux Vitek GNI+	<b>74</b>
bioMerieux Vitek API 20E	<b>37</b>
bioMerieux Vitek GNI	<b>17</b>
Two or more methods	<b>9</b>
Vitek ID-GNB	<b>9</b>
BBL Crystal Enteric / Nonfermenter	<b>6</b>
Conventional biochemicals	<b>4</b>
Dade Behring MicroScan Rapid Gram Negative	<b>2</b>
Remel RapID ONE	<b>2</b>
BBL Enterotube II	<b>1</b>
Cathra Autoreader	<b>1</b>
<b>TOTAL</b>	<b>242</b>

**Do not process blood cultures** **7**

**Additional organisms reported in Specimen 3:**

<i>Prevotella oralis</i> group	<b>1</b>
<i>Pseudomonas aeruginosa</i>	<b>1</b>

## ***Specimen No. 4 – Sputum (Pathogens Only) and Antibiotic Susceptibility***

The pathogenic organism included in this simulated sputum specimen was *Haemophilus influenzae*, type b. This organism was correctly reported by all referee laboratories and by approximately 98% of participating laboratories that processed this specimen source.

*Streptococcus sanguis* and *Staphylococcus hominis* were included as nonpathogenic organisms in this specimen.

Antimicrobial susceptibility testing (AST) was indicated for this specimen. This isolate of *H. influenzae* was susceptible to both ampicillin and cefotaxime. Approximately one-third of participating laboratories do not perform AST on *Haemophilus* isolates, instead relying on beta-lactamase testing as an indicator of ampicillin resistance. Surveillance data from 1999 - 2000 shows the prevalence of beta-lactamase positive *H. influenzae* from community-acquired respiratory infections is approximately 25.7% in the United States. Globally, this incidence ranges from a low of 1.8% (Italy) to a high of 65% (South Korea). Although rare, laboratories should be aware of the presence of strains of *Haemophilus influenzae* which are beta-lactamase negative but resistant to ampicillin (designated as BLNAR strains). The global incidence of BLNAR strains in this study is very low at 0.07%, with one strain from the United States and the other from Japan.<sup>1</sup> However, another study in Japan found the rate of BLNAR strains isolated from respiratory tract infections and cases of acute otitis media to be as high as 13.2%.<sup>2</sup>

Of the laboratories that performed susceptibility testing, 95% reported that the isolate was susceptible to ampicillin and 96% reported it as susceptible to cefotaxime. NCCLS guidelines indicate the following conditions for antimicrobial disk susceptibility testing of *Haemophilus* species: use of *Haemophilus* Test Medium (HTM), and incubation at 35°C in 5% CO<sub>2</sub> for 16 – 18 hours.<sup>3</sup> It is worthy to note that many of the laboratories performing disk diffusion testing are not adhering to these guidelines. Of the respondents providing information about media and incubation conditions, 20% reported incorrect length of incubation, 5% reported using media other than HTM and 3% reported that they had incubated the plates aerobically instead of in 5% CO<sub>2</sub>.

For laboratories performing AST by broth dilution, NCCLS guidelines specify the use of HTM broth incubated in ambient air at 35°C for 20-24 hours. One laboratory performed susceptibility testing using a Vitek panel and obtained an MIC for ampicillin of 32 µg/ml. Vitek panels are not indicated for AST of *Haemophilus influenzae*. A summary of antimicrobial susceptibility testing results is found on the following pages.

<sup>1</sup>Hoban, D. and Felmingham, D. 2002. The PROTEKT surveillance study: antimicrobial susceptibility of *Haemophilus influenzae* and *Moraxella catarrhalis* from community-acquired respiratory infections. J. of Antimicrobial Chemotherapy 50, Suppl. S1, 49-59.

<sup>2</sup>Hasegawa, K. et al. 2003. Diversity of Ampicillin-Resistance Genes in *Haemophilus influenzae* in Japan and the United States. Microbial Drug Resistance, 9(1), 39-46.

<sup>3</sup>National Committee for Clinical Laboratory Standards, 2003. Performance Standards for Antimicrobial Disk Susceptibility Tests; Approved Standard – 8<sup>th</sup> Edition, M2-A8. National Committee for Clinical Laboratory Standards, Wayne, PA.

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

***Haemophilus influenzae***

Conventional biochemicals	61
Remel RapID NH	47
bioMerieux Vitek NHI	32
Dade Behring MicroScan HNID	25
Two or more methods	24
bioMerieux Vitek API NH	20
BBL Haemophilus ID Quad	16
BBL Crystal <i>Neisseria</i> / <i>Haemophilus</i>	2
<b>TOTAL</b>	<b>227</b>

***Haemophilus influenzae b***

Conventional biochemicals	3
bioMerieux Vitek NHI	3
Dade Behring MicroScan HNID	2
Remel RapID NH	1
<b>TOTAL</b>	<b>9</b>

**Do not process sputum cultures** 8

**No Pathogens Isolated** 2

***Haemophilus parainfluenzae***

ALA Porphyrin test	1
--------------------	---

***Haemophilus parainfluenzae II***

bioMerieux Vitek NHI	1
----------------------	---

***Haemophilus species***

Conventional biochemicals	1
---------------------------	---

**Additional organisms reported in Specimen 4:**

<i>Staphylococcus aureus</i>	1
------------------------------	---

**Results of Antimicrobial Susceptibility testing - *H. influenzae* with AMPICILLIN**

<b>Result</b>	<b>Method</b>	<b>MIC (µg/ml)</b>	<b>Zone diam. (mm)</b>	
<b>Susceptible (148)</b>	Disk diffusion (130)		20 (1)	
			21 (1)	
			22 (2)	
			23 (15)	
			24 (10)	
			25 (21)	
			26 (15)	
			27 (8)	
			28 (15)	
			29 (7)	
			30 (18)	
			31 (2)	
			32 (5)	
			33 (2)	
			34 (5)	
			35 (1)	
			40 (1)	
			Not indicated (1)	
			AB Biodisk E-test (11)	0.12 (1)
		0.125 (3)		
		0.19 (1)		
		0.25 (4)		
		0.50 (2)		
		Trek Sensititre (2)	<=0.5 (1)	
			0.5 (1)	
		Agar dilution (1)	1 (1)	
		B-D Pasco (1)	<=0.5 (1)	
	F.A.S. Panel (1)	<=0.5 (1)		
	MIC (1)	0.25 (1)		
	PML Microbiologics (1)	<=0.5 (1)		
<b>Susceptibility testing not performed on <i>Haemophilus</i> (84)</b>				
<b>Do not process sputum cultures (8)</b>				
<b>Resistant (5)</b>	Disk diffusion (3)		10 (1)	
			18 (2)	
	Trek Sensititre (1)	>4 (1)		
	Vitek (1)	>32 (1)		
<b>No result (2)</b>				
<b>Intermediate (1)</b>	Disk diffusion (1)		20 (1)	
<b>Ampicillin not tested (1)</b>				

Number of laboratories reporting each result indicated in ( )

**Results of Antimicrobial Susceptibility testing – *H. influenzae* with CEFOTAXIME**

<b>Result</b>	<b>Method</b>	<b>MIC (µg/ml)</b>	<b>Zone diam. (mm)</b>	
<b>Susceptible (91)</b>	Disk diffusion (77)		26 (2)	
			27 (1)	
			29 (4)	
			30 (8)	
			31 (4)	
			32 (11)	
			33 (9)	
			34 (4)	
			35 (6)	
			36 (4)	
			37 (1)	
			38 (4)	
			39 (1)	
			40 (8)	
			41 (1)	
			42 (3)	
			43 (2)	
			44 (1)	
			45 (1)	
		48 (1)		
		Not indicated (1)		
		AB Biodisk E-test (5)	<=0.016 (1)	
			<0.03 (1)	
			0.012 (1)	
			0.016 (1)	
			0.023 (1)	
		Trek Sensititre (3)	<=0.12 (1)	
			<=0.4 (1)	
			<=4 (1)	
	MIC (2)	<=0.03 (1)		
		0.012 (1)		
	Agar dilution (1)	2 (1)		
	F.A.S. Panel (1)	<=0.25 (1)		
	PML Microbiologics (1)	<=0.25 (1)		
	Vitek (1)	<4 (1)		
<b>Susceptibility testing not performed on <i>Haemophilus</i> (84)</b>				
<b>Cefotaxime not tested (62)</b>				
<b>Do not process sputum cultures (8)</b>				
<b>No result (3)</b>				
<b>Resistant (1)</b>	Disk diffusion (1)		22 (1)	

Number of laboratories reporting each result indicated in ( )

Antibiotic Susceptibility Results - Participating & Referee Labs <i>Haemophilus influenzae</i>				
	Ampicillin		Cefotaxime	
	Referee <sup>a</sup>	Participant <sup>b</sup>	Referee <sup>a</sup>	Participant <sup>b</sup>
Susceptible	8	140	7	84
Intermediate	0	1	0	0
Resistant	0	5	0	1
Not Tested <sup>c</sup>	0	1	1	61
Do not process source <sup>d</sup>	0	8	0	8
No result reported	0	2	0	3
Not performed <sup>e</sup>	2	82	2	82

<sup>a</sup>Referee Laboratories (10 labs total)

<sup>b</sup>Other Participating Laboratories (239 labs total)

<sup>c</sup>Antibiotic not tested / reported for this organism

<sup>d</sup>Do not process specimen source

<sup>e</sup>Do not perform antimicrobial susceptibility testing on this organism



### ***Specimen No. 5 – Urine (All Organisms)***

This simulated urine specimen contained *Citrobacter freundii*. All referee laboratories reported this organism as did 99% of participating laboratories that process urine cultures.

#### **Methods of identification used by laboratories reporting:**

##### ***Citrobacter freundii***

Dade Behring MicroScan Gram Negative ID	82
bioMerieux Vitek API 20E	39
bioMerieux Vitek GNI+	36
bioMerieux Vitek GNI	18
bioMerieux Vitek ID-GNB	10
Two or more methods	8
BBL Crystal Enteric / Nonfermenter	6
Conventional biochemicals	3
BBL Enterotube II	2
Dade Behring MicroScan Rapid Gram Negative	2
Remel RapID ONE	2
Cathra Autoreader	1
<b>TOTAL</b>	<b>209</b>

##### ***Citrobacter freundii* complex**

bioMerieux Vitek GNI+	36
bioMerieux Vitek GNI	1
Two or more methods	1
<b>TOTAL</b>	<b>38</b>

**Do not process urine cultures** 1

##### ***Enterobacter agglomerans***

bioMerieux Vitek API 20E	1
--------------------------	---

Additional organisms reported in Specimen 5:

Coagulase negative <i>Staphylococcus</i>	1
--	---



## ***Educational Specimen – Blood (All Organisms)***

This was a non-graded simulated blood specimen containing a pure culture of *Oligella ureolytica*. Although *Oligella ureolytica* is primarily a pathogen of the urinary tract, the phenotypic characteristics of this organism are very close to that of *Brucella* species. Therefore, it was included in a simulated blood specimen to provide participating laboratories with experience in the recognition of possible *Brucella* species. *Brucella* species are most commonly isolated from blood and bone marrow but rarely from CSF, spleen, liver or abscesses.

Laboratories should perform all work on specimens suspected of containing *Brucella* in a biosafety cabinet using appropriate personal protective equipment. Due to the highly infectious nature of some *Brucella* species, laboratories are encouraged to contact the appropriate public health laboratory for technical guidance in specimen handling. However, in a specimen not initially suspected to contain *Brucella*, early recognition of this BioSafety Level 3 pathogen is imperative in preventing any unnecessary exposure of laboratory personnel. As would be the case with *Brucella* species, the isolate of *Oligella ureolytica* was slow growing, with pinpoint, non-hemolytic colonies appearing after 48-72 hours incubation. Gram stain revealed a small, gram-negative coccobacillus. **If a clinical isolate is encountered with this morphology, all further testing should be performed in a biosafety cabinet.** Testing of such isolates with automated identification systems is not recommended due to the potential for aerosolization. Further testing to rule out *Brucella* species includes catalase, oxidase, urease and satellite testing. As would be the case with a potential *Brucella* species, this isolate of *O. ureolytica* was positive for catalase, oxidase and strongly positive for urease. *Brucella suis* and some biovars of *Brucella melitensis* produce a positive urease reaction rapidly, usually in less than 5 minutes. Other species of *Brucella* usually produce a positive urease reaction after overnight incubation. A requirement for X and V factors can be done to rule out *Haemophilus* species; *Brucella* species do not require either X or V factor for growth. All testing to this point would have been unable to differentiate the proficiency isolate from a possible *Brucella* species. For most clinical laboratories, testing of isolates with these characteristics should be stopped at this point and reported as “Unable to rule out *Brucella* species” and forwarded to the appropriate public health laboratory for further testing.

Of the participating laboratories that processed this specimen, 53.7% were able to identify *Oligella ureolytica*. Approximately 13% reported that they were unable to rule out *Brucella* species and did not attempt further identification. Other results reported by participants included *Bordetella bronchiseptica* and *Psychrobacter phenylpyruvicus*. Ideally, if all participating laboratories had followed the CDC guidelines for Level A (clinical) laboratories, all would have reported the result as “Unable to rule out *Brucella* species” and indicated that isolate would be referred to the appropriate public health lab for further testing. Most of the participants went beyond the Level A laboratory procedure and attempted to identify the isolate; most likely this is attributable to the assumption that this was a simulated specimen containing only organisms that can be safely handled in a clinical laboratory.

CDC. Laboratory Response Network. Level A Laboratory Procedures for Identification of *Brucella* species. web address: [www.bt.cdc.gov/Agent/Brucellosis/bsp\\_cla\\_cp\\_121201.pdf](http://www.bt.cdc.gov/Agent/Brucellosis/bsp_cla_cp_121201.pdf)

Information on the CDC Laboratory Response Network.- <http://www.bt.cdc.gov/roleofclinlab.asp>

### Differentiation of most commonly reported organisms – Educational specimen

	<i>Brucella</i> sp.	<i>Bordetella bronchiseptica</i>	<i>Moraxella</i> species	<i>Psychrobacter phenylpyruvicus</i>	<i>Oligella ureolytica</i>	<i>Bergeyella zoohelcum</i>
Most common specimen source	Blood, bone marrow	Respiratory	Various sources	Various sources	Urinary tract	Bite wounds
Gram stain morphology	Tiny coccobacillus (faintly-staining)	Small coccobacillus	Tiny diplococci or diplobacilli	Broad coccobacillus	Tiny coccobacillus	Bacillus
Oxidase	+	+	+	+	+	+
Urease	+	+	-	+	+	+
Motility	-	+	-	-	V*	-
Nitrate	+	-	V	+	+	-

\* *The proficiency test isolate was weakly motile*

***Educational specimen – participating laboratory results***

***Oligella ureolytica***

bioMerieux Vitek API 20NE	45
Two or more methods	28
Conventional biochemicals	21
Remel RapID NF Plus	13
Remel RapID NH	5
Dade Behring MicroScan Gram Negative ID	4
BBL Crystal Enteric / Nonfermenter	1
BBL Crystal <i>Neisseria</i> / <i>Haemophilus</i>	1
BBL Sceptor	1
Biolog MicroLog Gram Negative	1
bioMerieux Vitek API 20E	1
bioMerieux Vitek API NH	1
bioMerieux Vitek NHI	1
Dade Behring MicroScan Rapid Gram Negative ID	1
<b>TOTAL</b>	<b>124</b>

**Unable to rule out *Brucella* species 30**

***Bordetella bronchiseptica***

Dade Behring MicroScan Gram Negative ID	5
Conventional biochemicals	2
bioMerieux API 20E	1
bioMerieux Vitek GNI+	1
Two or more methods	1
<b>TOTAL</b>	<b>10</b>

**No result reported 10**

***Psychrobacter (Moraxella) phenylpyruvicus***

Conventional biochemicals	3
Remel RapID NH	3
bioMerieux Vitek NHI	2
Two or more methods	1
<b>TOTAL</b>	<b>9</b>

**Do not process blood cultures 8**

***Brucella* species**

Conventional biochemicals	6
Two or more methods	1
<b>TOTAL</b>	<b>7</b>

<b><i>Bergeyella zoohelcum</i></b>	
Dade Behring MicroScan Gram Negative ID	4
Two or more methods	1
<b>TOTAL</b>	<b>5</b>
<b>Gram negative bacillus</b>	<b>5</b>
<b><i>Oligella urethralis</i></b>	
Conventional biochemicals	2
Remel RapID NH	1
16S rDNA sequencing	1
Two or more methods	1
<b>TOTAL</b>	<b>5</b>
<b><i>Oligella species</i></b>	
Conventional biochemicals	1
Dade Behring MicroScan Rapid Gram Negative	1
Remel RapID NH	1
Two or more methods	1
<b>TOTAL</b>	<b>4</b>
<b>Presumptive <i>Brucella species</i></b>	
Conventional biochemicals	4
<b>Gram negative coccobacillus</b>	<b>3</b>
<b><i>Moraxella species</i></b>	
Conventional biochemicals	1
Remel RapID NH	1
<b>TOTAL</b>	<b>2</b>
<b><i>Ochrobacterium anthropi</i></b>	
bioMerieux Vitek API 20E	1
Two or more methods	1
<b>TOTAL</b>	<b>2</b>
<b>Presumptive <i>Oligella ureolytica</i></b>	
Conventional biochemicals	1
Two or more methods	1
<b>TOTAL</b>	<b>2</b>
<b><i>Acinetobacter lwoffii</i></b>	
Two or more methods	1
<b><i>Actinobacillus actinomycetemcomitans</i></b>	
bioMerieux Vitek NHI	1

<b><i>Actinobacillus</i> species</b>	
Two or more methods	1
<b><i>Actinobacillus ureae</i></b>	
Conventional biochemicals	1
<b><i>Actinomyces actinomycetemcomitans</i></b>	
Remel RapID NH	1
<b><i>Bordetella parapertussis</i></b>	
Conventional biochemicals	1
<b><i>Brucella abortus</i></b>	
Conventional biochemicals	1
<b><i>Helicobacter</i> species</b>	
Conventional biochemicals	1
<b><i>Micrococcus</i> species</b>	
Dade Behring MicroScan	1
<b><i>Moraxella catarrhalis</i></b>	
Remel Catarrhalis test disk	1
<b><i>Neisseria flavescens</i></b>	
bioMerieux Vitek NHI	1
<b><i>Neisseria meningitidis</i></b>	
BBL Crystal <i>Neisseria</i> / <i>Haemophilus</i>	1
<b>Non-fermenting gram negative bacillus</b>	1
<b>Possible <i>Actinobacillus</i> species</b>	
Two or more methods	1
<b>Possible <i>M. phenylpyruvicus</i> / Unable to R/O <i>Brucella</i></b>	
No method indicated	1
<b>Possible <i>Moraxella</i> species</b>	
Conventional biochemicals	1
<b>Possible <i>Ralstonia</i> species</b>	
Conventional biochemicals	1

**Presumptive *Francisella tularensis***  
Conventional biochemicals

**1**

***Pseudomonas* species**  
Remel RapID NF Plus

**1**

### ***Chlamydia – cervical swab for direct testing***

This simulated cervical swab was appropriate for laboratories that test for *Chlamydia* using direct testing methods but was not suitable for culture. Of the participating laboratories that tested this specimen, 99% reported it as negative for *Chlamydia trachomatis*.

#### **Test kits used by laboratories reporting this specimen as:**

##### **Negative for *Chlamydia trachomatis*:**

Gen-Probe PACE 2	67
Becton-Dickinson Probe Tec	11
bioMerieux Vitek VIDAS	6
Gen-Probe Aptima Combo 2	5
Roche Diagnostics COBAS	5
Beckman Coulter Access <i>Chlamydia</i> EIA	4
Roche Diagnostics AMPLICOR CT/NG	4
No test method indicated	3
Polymerase chain reaction	2
Abbott LCx <i>C. trachomatis</i> assay	1
Trinity Biotech MicoTrak II <i>Chlamydia</i> EIA	1
Wampole MicroTrak II <i>Chlamydia</i> EIA	1
<b>TOTAL</b>	<b>110</b>

##### **Positive for *Chlamydia trachomatis***

Trinity Biotech <i>C. trachomatis</i> direct specimen test	<b>1</b>
--	----------



## ***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 simulated CSF to be tested for bacterial antigens. 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*. All of the participating laboratories that processed this specimen reported it as negative.

#### **Test kits used by laboratories reporting Specimen A as: Negative for Group A *Streptococcus***

Abbott Signify Strep A	13
B-D Q Test Strep	7
Quidel Quick Vue + Strep A	4
Thermo BioStar Aceava Strep A	4
Thermo BioStar Strep A OIA Max	4
B-D Directigen Grp A Strep	3
Fisher Healthcare Sure-Vue Strep A	3
Quidel Quick Vue Inline Strep A	3
Test method not indicated / incomplete info	3
B-D Link 2 Strep A	2
Beckman-Coulter Icon Fx Strep A	2
GenProbe Group A Strep	2
Lifesign Status AccuStrep A	2
Remel RIM A.R.C. Strep A	2
Applied Biotech Signify Strep A	1
Applied Biotech SureStep Strep A	1
Diagnostic Products Corporation PathoDx Strep A	1
Genzyme OSOM Ultra Strep A	1
Polymedco PolyStat Strep A	1
Sacks Medical Corporation RefuAH Strep A	1
Wampole Clearview Strep A	1
<b>TOTAL</b>	<b>61</b>

**Specimen B - Source: CSF**

This specimen did not contain any bacterial antigens. Of the participating laboratories that tested this specimen, 98% correctly reported it as negative for bacterial antigens.

**Test kits used by laboratories reporting Specimen B as:**

**Negative for bacterial antigens:**

B-D Directigen Meningitis Combo test	38
Murex Wellcogen Bacterial Antigen test	31
Test method not indicated	1
<b>TOTAL</b>	<b>70</b>

***Haemophilus influenzae b***

B-D Directigen Meningitis Combo test	1
--------------------------------------	---

**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>
<b>SPECIMEN NUMBER 1</b>		
<i>Campylobacter jejuni</i>	160	64.3
<i>Campylobacter</i> species	46	18.5
Do not process stool cultures	15	6.0
Do not test for <i>Campylobacter</i>	10	4.0
No Enteric Pathogens / Not reported	7	2.8
<i>Campylobacter jejuni</i> ssp. <i>jejuni</i>	5	2.0
Presumptive <i>Campylobacter jejuni</i>	2	0.8
Presumptive <i>Campylobacter</i> species	2	0.8
<i>Campylobacter coli</i>	1	0.4
<i>Campylobacter jejuni</i> group	1	0.4
*****		

<b>SPECIMEN NUMBER 2</b>		
No Pathogens Isolated / Normal flora	218	87.6
No beta hemolytic <i>Streptococcus</i>	14	5.6
No group A <i>Streptococcus</i>	10	4.0
Do not process throat specimens	5	2.0
<i>Neisseria gonorrhoeae</i>	2	0.8
*****		

<b>SPECIMEN NUMBER 3</b>		
<i>Bacteroides fragilis</i>	192	77.1
<i>Bacteroides fragilis</i> group	15	6.0
<i>Bacteroides</i> species	8	3.2
Do not isolate anaerobes	8	3.2
Do not process specimen source	7	2.8
Not reported	7	2.8
<i>Bacteroides caccae</i>	3	1.2
Anaerobic gram negative bacillus	2	0.8
<i>Bacteroides distasonis</i>	2	0.8
<i>Prevotella loescheii</i>	2	0.8
<i>Bacteroides</i> (no further ID)	1	0.4
<i>Bacteroides ovatus</i>	1	0.4
No <i>Bifidobacterium</i> isolated	1	0.4
<i>Klebsiella pneumoniae</i>	242	97.2
Do not process blood cultures	7	2.8
*****		

<b>SPECIMEN NUMBER 4</b>		
<i>Haemophilus influenzae</i>	227	91.2
<i>Haemophilus influenzae</i> b	9	3.6
Do not process sputum cultures	8	3.2

No Pathogens Isolated	2	0.8
<i>Haemophilus parainfluenzae</i>	1	0.4
<i>Haemophilus parainfluenzae</i> II	1	0.4
<i>Haemophilus</i> species	1	0.4
*****		

**SPECIMEN NUMBER 5**

<i>Citrobacter freundii</i>	209	83.9
<i>Citrobacter freundii</i> complex	38	15.3
Do not process urine cultures	1	0.4
<i>Enterobacter agglomerans</i>	1	0.4
*****		

**CHLAMYDIA SPECIMEN**

Negative for <i>Chlamydia trachomatis</i>	110	99.1
Positive for <i>Chlamydia trachomatis</i>	1	0.9
*****		

**DIRECT ANTIGEN SPECIMEN**

A. Negative for Group A <i>Streptococcus</i>	61	100.0
B. Negative for bacterial antigens	70	98.6
<i>Haemophilus influenzae</i> b	1	1.4