

# **BACTERIOLOGY PROFICIENCY TESTING PROGRAM**

## **General Category**

**May 4, 2004**

This report summarizes the results of the proficiency test administered May 4, 2004 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)

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# ***Bacteriology Proficiency Testing Program***

## ***GENERAL INFORMATION***

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

**Authentication.** The presence and identity of the organism(s) in each specimen must be confirmed by at least 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***

#### **Discontinuation of CSF antigen proficiency test sample**

Due to difficulties in obtaining quality test samples, this was the last proficiency test containing a sample for CSF antigen testing. Therefore, laboratories performing this test will need to implement a twice-yearly quality assurance program to fulfill the requirements specified in Quality Assurance Standard 8 of the New York State Health Department Laboratory Standards.

**MAY 4, 2004 TEST EVENT**

**Number of Participating Laboratories:**

**Receiving specimens**      **246**  
**Returning results**      **245**      **(99.6%)**

Grade Distribution		
Score	Number	Percent
100	174	71.0
90 - 99	35	14.3
80 - 89	24	9.8
70 - 79	4	1.6
60 - 69	4	1.6
< 60	4	1.6

**BACTERIOLOGY - GENERAL**  
**MAY 4, 2004**  
**ANSWER KEY**

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

No Enteric Pathogens

**Specimen No. 2 – Wound (ALL Organisms)**

*Erysipelothrix rhusiopathiae*

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

*Eubacterium lentum (Eggerthella lenta)*

*Klebsiella oxytoca*

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

*Klebsiella pneumoniae* – ESBL positive

Susceptibility of *K. pneumoniae* to: Cefotaxime - Resistant

Ceftriaxone – Resistant

**Specimen No. 5 – Urethra (Pathogens Only)**

*Neisseria gonorrhoeae*

***Chlamydia* Specimen**

Positive for *Chlamydia trachomatis*

**Direct Antigen Detection**

A (Throat)

Negative for Group A *Streptococcus*

B (CSF)

Positive for *Streptococcus pneumoniae*

## REFEREE LABORATORY RESULTS

<b>Specimen Number</b>	<b>Referee Laboratory Responses</b>	<b>Percent*</b>
1	No enteric pathogens	100
2	<i>Erysipelothrix rhusiopathiae</i>	100
3	<i>Eubacterium lentum</i>	100
	<i>Klebsiella oxytoca</i>	100
4	<i>Klebsiella pneumoniae</i>	100
5	<i>Neisseria gonorrhoeae</i>	100

\* Based on responses of 10 referee laboratories

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

This simulated stool specimen did not contain any pathogenic organisms. All referee laboratories reported 'No enteric pathogens' for this specimen. Of the participating laboratories that process stool specimens, no laboratories reported the presence of any pathogenic organisms in this specimen.

The organisms included in this specimen were *Escherichia coli*, *Enterobacter cloacae* and *Enterococcus faecalis*.

#### **Reports by participating laboratories:**

<b>No enteric pathogens</b>	<b>228</b>
<b>Do not process stool specimens</b>	<b>14</b>
<b><i>E. coli</i> – sent to reference lab to rule out O157</b>	<b>1</b>
<b>No <i>Salmonella</i> or <i>Shigella</i></b>	<b>1</b>
<b>No <i>Salmonella</i>, <i>Shigella</i> or <i>Campylobacter</i></b>	<b>1</b>

## ***Specimen No. 2 – Wound (All Organisms)***

This simulated wound specimen contained a pure culture of *Erysipelothrix rhusiopathiae*. All referee laboratories identified this organism as did 80% of participating laboratories that process wound cultures. An additional 10% of participants (24 laboratories) reported '*Erysipelothrix* species'.

*Erysipelothrix rhusiopathiae* is an important animal pathogen, causing infections in both domestic and wild animals, including marine animals. Human infections are caused by contact with infected animals or fish, animal products, or soil contaminated with the waste from infected animals. This organism is an occupational pathogen for veterinarians, farmers, and butchers.

*Erysipelothrix rhusiopathiae* is a non-sporeforming gram positive bacillus. Most strains are slightly alpha-hemolytic on blood agar. It is catalase negative, nonmotile and can be distinguished from other gram positive bacilli by production of H<sub>2</sub>S in TSI agar.

Disease caused by *E. rhusiopathiae* can be classified into three clinical forms: 1) erysipeloid, a mild localized cellulitis that develops around the area of inoculation, 2) a diffuse cutaneous form without bacteremia and 3) bacteremia that is often associated with endocarditis. Mortality from *E. rhusiopathiae* endocarditis is reported to be as high as 38%. Additionally, *E. rhusiopathiae* has been isolated as the predominant organism from a case of necrotizing fasciitis.

Gram positive infections are often treated empirically with vancomycin. However, *E. rhusiopathiae* is resistant to vancomycin, making proper identification and susceptibility testing of this organism crucial.

Artz, AL et al. 2001. Aortic valve endocarditis with paravalvular abscesses caused by *Erysipelothrix rhusiopathiae*. European Journal of Clinical Microbiology & Infectious Diseases. 20:587-8.

Brooke, C.J. and Riley, TV. 1999. *Erysipelothrix rhusiopathiae*: bacteriology, epidemiology and clinical manifestations of an occupational pathogen. Journal of Medical Microbiology. 48(9):789-99.

Hill, DG and Ghassemian JN. 1997. *Erysipelothrix rhusiopathiae* endocarditis: clinical features of an occupational disease. Southern Medical Journal. 90:1147-48.

Simionescu, R. et al. 2003. Necrotizing fasciitis caused by *Erysipelothrix rhusiopathiae*. Southern Medical Journal. 96(9): 937-9.

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

***Erysipelothrix rhusiopathiae***

Conventional biochemicals	50
bioMerieux Vitek GPI	47
Two or more test methods	41
BioMerieux Vitek API Coryne	39
Remel RapID CB Plus	11
BBL Crystal Gram Positive	1
BBL Crystal Rapid Gram Positive	1
BioMerieux Vitek API 20NE	1
BioMerieux Vitek GNI+	1
Test method not indicated	1
<b>TOTAL</b>	<b>193</b>

***Erysipelothrix* species**

Conventional biochemicals	14
BioMerieux Vitek GPI	6
BioMerieux Vitek API Coryne	2
Remel RapID CB Plus	1
Test method not indicated	1
<b>TOTAL</b>	<b>24</b>

**Aerobic gram positive rods / bacilli** 10

**Do not process wound cultures** 6

***Lactobacillus* species**

Conventional biochemicals	1
Test method not indicated	1
<b>TOTAL</b>	<b>2</b>

***Acinetobacter lwoffii***

Dade Behring MicroScan Gram Negative ID	1
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**Aerobic non-sporeforming gram positive bacilli** 1

***Arcanobacterium haemolyticum***

Conventional biochemicals	1
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***Arcanobacterium* species**

Conventional biochemicals	1
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***Corynebacterium* sp., possible *E. rhusiopathiae***

Conventional biochemicals	1
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***Corynebacterium* species**

Test method not indicated	1
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<b>Group D <i>Enterococcus</i></b>	
Conventional biochemicals	<b>1</b>
<b><i>Kingella</i> species</b>	
Two or more test methods	<b>1</b>
<b>No pathogens found</b>	<b>1</b>
<b><i>Pseudomonas</i> species</b>	
BioMerieux Vitek API 20NE	<b>1</b>

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

This simulated abscess specimen contained *Eubacterium lentum* (*Eggerthella lenta*) and *Klebsiella oxytoca*.

*Eubacterium lentum* / *Eggerthella lenta* was identified by all referee laboratories and by 79% (183) of participating laboratories that process abscess specimens for anaerobic culture. An additional 5% (12) reported the organism as *Eubacterium* species. The nomenclature of this organism was changed in 1999 with the creation of the genus *Eggerthella* and the reclassification of *Eubacterium lentum* as *Eggerthella lenta*.<sup>1</sup> *E. lenta* is normal flora of the colon. It is usually isolated as part of a mixed culture from abscesses, wounds and blood cultures.<sup>2</sup> It has also been implicated in root canal infections.<sup>3</sup>

*Klebsiella oxytoca* was identified by all referee laboratories and by all participating laboratories that process abscess specimens.

<sup>1</sup> Wade, WG et al. 1999. The family *Coriobacteriaceae*: reclassification of *Eubacterium exigum* (Poco et al. 1996) and *Peptostreptococcus heliotrinireducens* (Lanigan 1976) as *Slackia exigua* gen. nov., comb. nov. and *Slackia heliotrinireducens* gen. nov., comb. nov., and *Eubacterium lentum* (Prevot 1938) as *Eggerthella lenta* gen. nov., comb. nov. International Journal of Systematic Bacteriology. 49: 595-600.

<sup>2</sup> Moncla, BJ and Hiller, SL. 2003. *Peptostreptococcus, Propionibacterium, Lactobacillus, Actinomyces* and Other Non-Spore-Forming Anaerobic Gram Positive Bacteria. pp. 857-879. In Murray, PR, Baron, EJ, Jorgensen, JH, Pfaller, MA, Tenover, FC, Tenover, FC, (eds.) *Manual of Clinical Microbiology*, 8<sup>th</sup> edition. ASM Press, Washington, DC.

<sup>3</sup> Sundqvist, G. 1992. Associations between microbial species in dental root canal infections. Oral Microbiology & Immunology. 7(5): 257-62.

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

##### ***Eubacterium lentum***

Remel Rapid ANA II	78
bioMerieux Vitek ANI	27
bioMerieux Vitek API 20A	24
Dade Behring MicroScan Rapid Anaerobe	16
Two or more test methods	15
bioMerieux Vitek API AN-Ident	3
bioMerieux Vitek API Rapid ID 32A	2
Test method not indicated	2
BBL Crystal Anaerobe	1
16S rDNA sequencing	1
<b>TOTAL</b>	<b>169</b>

<b><i>Eggerthella lenta</i></b>	
Remel Rapid ANA II	5
Two or more test methods	5
BBL Crystal Anaerobe	1
Conventional biochemicals	1
bioMerieux Vitek API 20A	1
Dade Behring MicroScan Rapid Anaerobe	1
<b>TOTAL</b>	<b>14</b>
<b><i>Eubacterium species</i></b>	
Remel Rapid ANA II	8
bioMerieux Vitek API 20A	2
bioMerieux Vitek API An-Ident	1
Two or more test methods	1
<b>TOTAL</b>	<b>12</b>
<b>Do not perform anaerobic cultures</b>	<b>9</b>
<b>Anaerobic non-sporeforming gram positive rod</b>	<b>4</b>
<b>Do not process abscess cultures</b>	<b>4</b>
<b>Anaerobic gram positive rod</b>	<b>3</b>
<b><i>Peptostreptococcus prevottii</i></b>	
Remel Rapid ANA II	3
<b><i>Peptostreptococcus species</i></b>	
Remel Rapid ANA II	2
Conventional biochemicals	1
<b>TOTAL</b>	<b>3</b>
<b><i>Clostridium histolyticum</i></b>	
bioMerieux Vitek ANI	2
<b><i>Clostridium novyii</i></b>	
Remel Rapid ANA II	2
<b><i>Clostridium tetani</i></b>	
Remel Rapid ANA II	2
<b>No <i>Bifidobacterium</i></b>	<b>2</b>
<b>Not reported</b>	<b>2</b>
<b>Anaerobic gram pos rod, presumptive <i>Clostridium</i> sp.</b>	<b>1</b>
<b>Anaerobic gram positive rod, not <i>C. perfringens</i></b>	<b>1</b>

<i>Clostridium limosum</i> BBL Crystal Anaerobe	1
<i>Clostridium species, not perfringens</i> bioMerieux Vitek ANI	1
<i>Clostridium subterminale</i> bioMerieux Vitek ANI	1
<i>Eubacterium limosum</i> Dade Behring MicroScan Rapid Anaerobe	1
<i>Fusobacterium species</i> bioMerieux Vitek ANI	1
<i>Fusobacterium varium</i> bioMerieux Vitek ANI	1
<b>Gram negative bacillus – do not ID</b>	1
<b>No anaerobe isolated</b>	1
<i>Peptostreptococcus asaccharolyticus</i> Dade Behring MicroScan Rapid Anaerobe	1
<i>Peptostreptococcus magnus</i> BBL Crystal Anaerobe	1
<b>Probable <i>Eubacterium lentum</i></b> Remel Rapid ANA II	1
<i>Propionibacterium acnes</i> Remel Rapid ANA II	1

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

***Klebsiella oxytoca***

Dade Behring MicroScan Gram Negative ID	75
bioMerieux Vitek GNI+	73
bioMerieux Vitek API 20E	34
bioMerieux Vitek ID-GNB	17
Two or more test methods	15
bioMerieux Vitek GNI	11
BBL Crystal Enteric/Nonfermenter	5
Dade Behring MicroScan Rapid Gram Negative	3
BBL Enterotube II	2
Conventional biochemicals	2
Test method not indicated	2
Cathra Autoreader	1
Remel RapID ONE	1
<b>TOTAL</b>	<b>241</b>

**Do not process abscess cultures** 4

**Additional organisms reported in Specimen 3:**

*Clostridium perfringens* 2

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

This simulated urine culture contained a pure culture of *Klebsiella pneumoniae*. All referee laboratories correctly identified this organism as did 99% of participating laboratories that process urine cultures.

Antibiotic susceptibility testing was indicated for this specimen. This isolate of *K. pneumoniae* was an extended-spectrum-beta-lactamase (ESBL) producer. Approximately 61% of the participating laboratories that reported susceptibility results recognized this organism as a potential ESBL producer and specifically noted this on their test results. Of these, 84% (125 laboratories) performed confirmatory ESBL testing while 16% (23 laboratories) performed only the screening test and noted that they would send the organism to a reference laboratory for confirmation. In the September, 2002 New York State Proficiency test, the same organism was included for antimicrobial susceptibility testing. At that time, 55% of the participating laboratories recognized this as an ESBL-positive organism.

Extended-spectrum-beta-lactamases (ESBLs) are enzymes that confer resistance to extended-spectrum cephalosporins, penicillins and aztreonam. ESBLs are most commonly found in *Klebsiella* species and *Escherichia coli*. Organisms containing ESBLs may appear susceptible to these antimicrobial agents in vitro, but may be clinically resistant.

NCCLS guidelines<sup>1</sup> indicate that strains of *Klebsiella* species and *E. coli* that appear susceptible to penicillin, extended-spectrum cephalosporins or aztreonam should be screened for ESBL production before results are reported for these antibiotics. A screening test for ESBLs is described in the NCCLS guidelines and includes the use of at least two of the following antibiotics: cefpodoxime, ceftazidime, aztreonam, cefotaxime or ceftriaxone. This test is described for both disk diffusion and MIC methods and values are listed which may indicate ESBL production. Confirmatory testing using ceftazidime and cefotaxime alone and in combination with clavulanic acid (a  $\beta$ -lactamase inhibitor), is also described. In isolates containing ESBLs, resistance is significantly decreased in the presence of clavulanic acid. Laboratories should refer to NCCLS guidelines for more specific information regarding both the screening and confirmatory testing procedures and interpretations.

This isolate of *K. pneumoniae* was resistant to ceftazidime, with expected zone diameters in the range of 10-18 mm and an MIC of 32  $\mu\text{g}/\text{ml}$ . The screening guidelines indicate that ceftazidime zone diameters of  $\leq 22$  mm and MICs of  $\geq 2$   $\mu\text{g}/\text{ml}$  may indicate ESBL production. If an organism is found to be ESBL-positive, results for all penicillins, cephalosporins and aztreonam should be interpreted as resistant. Approximately 96% of participating laboratories that tested ceftazidime reported an interpretation of resistant for this isolate of *K. pneumoniae*.

Initial testing with ceftriaxone should have yielded zone diameters in the range of 16-24 mm and an MIC of 16  $\mu\text{g}/\text{ml}$ . Screening guidelines indicate ceftriaxone zone diameters of  $\leq 25$  mm and MICs of  $\geq 2$   $\mu\text{g}/\text{ml}$  indicate potential ESBL production. Since this isolate is ESBL-positive, the correct interpretation for ceftriaxone is resistant. Approximately 76% of the participating laboratories that tested ceftriaxone reported a correct interpretation of resistant. However, 16% of participants failed to recognize the possibility of ESBL production in this isolate and incorrectly reported it as susceptible to ceftriaxone.

Antibiotic resistance is a critical issue in clinical microbiology. New information is continually emerging and it is vital that clinical laboratories keep abreast of the latest developments. Recent references cite the incidence of ESBLs detected in North America to be as high as 44%.<sup>2</sup> NCCLS guidelines provide simple screening methods for detection of possible ESBL production. Laboratories that are unable to perform this testing should forward isolates of *Klebsiella* species and *E. coli* to a reference laboratory for ESBL testing. Susceptibility interpretations for penicillins, cephalosporins and aztreonam should not be reported on potential ESBL isolates until proper confirmatory testing has been performed.

<sup>1</sup> National Committee for Clinical Laboratory Standards, 2004. Performance Standards for Antimicrobial Susceptibility Testing; Fourteenth Informational Supplement, M100-S14. National Committee for Clinical Laboratory Standards, Wayne, PA.

<sup>2</sup> Sturenburg, E and Mack D. 2003. Extended-spectrum beta-lactamases: implications for the clinical microbiology laboratory, therapy and infection control. *Journal of Infection*. 47(4) 273-95.

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

***Klebsiella pneumoniae***

Dade Behring MicroScan Gram Negative ID	82
bioMerieux Vitek GNI+	75
bioMerieux Vitek API 20E	30
bioMerieux Vitek ID-GNB	18
bioMerieux Vitek GNI	12
Two or more test methods	11
BBL Crystal Enteric/Nonfermenter	5
Conventional biochemicals	4
MicroScan Rapid Gram Neg	3
BBL Enterotube II	2
Cathra Autoreader	1
<b>TOTAL</b>	<b>243</b>

**Do not process urine cultures** 1

***Enterobacter aerogenes***

Remel RapID ONE	1
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Additional organisms reported in Specimen 4:

<i>Peptostreptococcus tetradius</i>	1
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**Results of Antimicrobial Susceptibility testing - *K. pneumoniae* with CEFTAZIDIME**

<b>Result</b>	<b>Method</b>	<b>MIC (µg/ml)</b>	<b>Zone diam. (mm)</b>	
<b>Resistant (196)</b>	Dade Behring MicroScan (75)	16 (1)		
		≥16 (1)		
		>16 (63)		
		>18 (1)		
		>32 (1)		
		64 (1)		
		Not indicated (7)		
	bioMerieux Vitek (71)	8 (1)		
		16 (12)		
		≥32 (33)		
		>32 (5)		
		≥64 (10)		
		>64 (5)		
	Not indicated (5)			
	Disk diffusion (41)			6 (2)
				8 (1)
				10 (2)
				11 (2)
				12 (1)
				13 (6)
				14 (11)
				15 (7)
				16 (5)
				19 (1)
				48 (1)
	Not indicated (2)			
	AB Biodisk E-test (3)			>32 (1)
64 (1)				
Not indicated (1)				
MIC (unspecified) (3)		>16 (1)		
		≥32 (1)		
		64 (1)		
Trek Sensititre (2)		8 (1)		
		16 (1)		
Agar dilution (1)		>16 (1)		
<b>Ceftazidime not tested (35)</b>				
<b>Intermediate (7)</b>	Disk diffusion (5)		16 (5)	
	bioMerieux Vitek (2)	16 (2)		
<b>Unable to interpret result – possible ESBL (2)</b>				
<b>No antimicrobial susceptibility testing performed (2)</b>				
<b>Susceptible (1)</b>	Dade Behring MicroScan (1)	≤8 (1)		
<b>Do not perform susceptibility testing on urine specimens (1)</b>				
<b>Do not process urine cultures (1)</b>				

Number of laboratories reporting each result indicated in ( )

**Results of Antimicrobial Susceptibility testing – *K. pneumoniae* with CEFTRIAXONE**

Result	Method	MIC (µg/ml)	Zone diam. (mm)	
<b>Resistant (159)</b>	bioMerieux Vitek (66)	<4 (1)		
		4 (12)		
		<8 (6)		
		≤8 (29)		
		8 (5)		
		≥8 (1)		
		16 (3)		
		32 (1)		
		≥32 (1)		
		≥64 (1)		
		>64 (1)		
		Not indicated (5)		
		Dade Behring MicroScan (56)		2 (1)
	<4 (2)			
	<8 (9)			
	≤8 (10)			
	<16 (1)			
	16 (8)			
	>16 (1)			
	32 (5)			
	>32 (16)			
	Not indicated (3)			
	Disk diffusion (32)			13 (1)
				14 (1)
				15 (1)
				16 (4)
				17 (2)
				18 (7)
				19 (4)
				20 (3)
				21 (3)
				22 (2)
				Not indicated (4)
	Trek Sensititre (2)			<4 (1)
		4 (1)		
A-B Biodisk E-test (1)		Not indicated (1)		
Agar dilution (1)		> 32 (1)		
MIC (unspecified ) (1)		>32 (1)		
<b>Susceptible (34)</b>	bioMerieux Vitek (20)	4 (1)		
		<8 (1)		
		≤8 (17)		
		<10 (1)		

	Dade Behring MicroScan (12)	<8 (4)	
		≤8 (4)	
		8 (1)	
		Not indicated (3)	
	Disk diffusion (1)		21 (1)
	MIC (unspecified ) (1)	≤8 (1)	
<b>Ceftriaxone not tested (27)</b>			
<b>Intermediate (17)</b>	Disk diffusion (11)		15 (1)
			16 (3)
			17 (2)
			18 (2)
			19 (2)
			20 (1)
	Dade Behring MicroScan (5)	16 (1)	
		32 (3)	
		Not indicated (1)	
	bioMerieux Vitek (1)	16 (1)	
<b>Unable to interpret result – possible ESBL (3)</b>			
<b>No antimicrobial susceptibility testing performed (2)</b>			
<b>No result reported (1)</b>			
<b>Do not perform susceptibility testing on urine specimens (1)</b>			
<b>Do not process urine cultures (1)</b>			

Number of laboratories reporting each result indicated in ( )

Antibiotic Susceptibility Results - Participating & Referee Labs <i>Klebsiella pneumoniae</i>				
	Ceftazidime		Ceftriaxone	
	Referee <sup>a</sup>	Participant <sup>b</sup>	Referee <sup>a</sup>	Participant <sup>b</sup>
Susceptible	0	1	0	33
Intermediate	0	7	0	17
Resistant	10	186	9	150
Unable to interpret – possible ESBL	0	2	0	3
Not Tested <sup>c</sup>	0	35	1	27
Do not process source <sup>d</sup>	0	1	0	1
No result reported	0	0	0	1
Not performed on organism <sup>e</sup>	0	0	0	0
Not performed on source <sup>f</sup>	0	1	0	1
No susceptibility testing done <sup>g</sup>	0	2	0	2

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

<sup>b</sup>Other Participating Laboratories (235 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

<sup>f</sup>Do not perform susceptibility testing on specimen source

<sup>g</sup>No antimicrobial susceptibility testing performed

### ***Specimen No. 5 – Urethra (Pathogens Only)***

This simulated urethral specimen contained *Neisseria gonorrhoeae*. All referee laboratories reported this organism as did 99% of participating laboratories that culture genital tract specimens for *N. gonorrhoeae*.

*Staphylococcus hominis* was also included in this specimen as nonpathogenic flora.

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

##### ***Neisseria gonorrhoeae***

Remel RapID NH	63
bioMerieux Vitek API NH	35
bioMerieux Vitek NHI	35
Dade Behring MicroScan HNID	29
Two or more test methods	26
Conventional biochemicals	24
Gen Probe PACE 2 CT/GC	5
Remel Bactocard <i>Neisseria</i>	4
Phadebact Monoclonal GC	3
GenProbe Accuprobe <i>Neisseria</i>	3
BBL Crystal <i>Neisseria/Haemophilus</i>	2
BD Gonogen II	1
EY Laboratories Gonocheck II	1
Test method not indicated	1
<b>TOTAL</b>	<b>232</b>

**Do not process genital tract cultures** 9

**No pathogens** 1

**Do not process genital cultures** 1

##### **Coagulase negative *Staphylococcus* species**

Conventional biochemicals 1

**Do not test for *Neisseria gonorrhoeae*** 1

##### **Additional organisms reported in Specimen 5:**

*Staphylococcus aureus* 2

*Staphylococcus hominis* 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, all were able to detect the presence of *Chlamydia trachomatis*.

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

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

Gen-Probe PACE 2 CT or CT/GC	61
BD ProbeTec <i>C. trachomatis</i> assay	17
Gen-Probe Aptima Combo 2	8
bioMerieux Vitek VIDAS	7
Roche Diagnostics AMPLICOR CT/NG	4
Roche Diagnostics COBAS	4
Beckman Coulter Access <i>Chlamydia</i> EIA	2
PCR	2
GenProbe, not specified	2
Behring MicroTrak <i>Chlamydia</i> EIA	1
BioRad <i>Chlamydia</i> Microplate EIA	1
Digene Hybrid Capture hc2 CT/NG	1
Quidel QuickVue <i>Chlamydia</i>	1
Trinity MicroTrak II <i>Chlamydia</i> EIA	1
<b>TOTAL</b>	<b>112</b>

#### **Positive Screen for *C. trachomatis*/*N. gonorrhoeae***

Gen-Probe PACE 2 CT/GC	1
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## ***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*. Of the participating laboratories that processed this specimen, all reported it as negative.

#### **Test kits used by laboratories reporting Specimen A as:**

##### **Negative for Group A *Streptococcus***

Abott Signify Strep A	17
B-D Q Test Strep	7
Thermo Biostar Aceava Strep A	5
Quidel Quick Vue + Strep A	5
Fisher Healthcare Sure-Vue Strep A	4
Thermo Biostar Strep A OIA Max	4
B-D Link 2 Strep A	3
Quidel Quick Vue Inline Strep A	3
GenProbe Group A Strep	2
LifeSign Status Accustrep A	2
Remel PathoDx Strep A	2
Remel RIM A.R.C. Strep A	2
Applied Biotech Surestep Strep A	1
B-D (unspecified)	1
Beckman-Coulter Icon DS Strep A	1
Genzyme OSOM Ultra Strep A	1
Polymedco Poly Stat Strep A	1
Wampole Clearview Strep A	1
<b>TOTAL</b>	<b>62</b>

**Specimen B - Source: CSF**

This specimen was positive for *Streptococcus pneumoniae*. All of the participating laboratories that tested this specimen detected the presence of *Streptococcus pneumoniae*.

**Important Note:** This was the last proficiency test to contain a sample for CSF antigen testing. Therefore, laboratories performing this test will need to implement a twice-yearly quality assurance program to fulfill the requirements specified in Quality Assurance Standard 8 of the New York State Health Department Laboratory Standards.

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

**Positive for *Streptococcus pneumoniae***

Becton-Dickinson Meningitis Combo	35
Murex Wellcogen Bacterial Antigen	33
Test method not indicated	1
<b>TOTAL</b>	<b>69</b>

**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>		
No enteric pathogens	228	93.1
Do not process stool specimens	14	5.7
<i>E. coli</i> – sent to reference lab to rule out O157	1	0.4
No <i>Salmonella</i> or <i>Shigella</i>	1	0.4
No <i>Salmonella</i> , <i>Shigella</i> or <i>Campylobacter</i>	1	0.4

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<b>SPECIMEN NUMBER 2</b>		
<i>Erysipelothrix rhusiopathiae</i>	193	78.8
<i>Erysipelothrix</i> species	21	8.6
Aerobic gram positive rods / bacilli	10	4.1
Do not process wound cultures	6	2.4
<i>Erysipelothrix</i>	3	1.2
<i>Lactobacillus</i> species	2	0.8
<i>Acinetobacter lwoffii</i>	1	0.4
Aerobic non-sporeforming gram positive bacilli	1	0.4
<i>Arcanobacterium haemolyticum</i>	1	0.4
<i>Arcanobacterium</i> species	1	0.4
<i>Corynebacterium</i> sp., possible <i>E. rhusiopathiae</i>	1	0.4
<i>Corynebacterium</i> species	1	0.4
Group D <i>Enterococcus</i>	1	0.4
<i>Kingella</i> species	1	0.4
No pathogens found	1	0.4
<i>Pseudomonas</i> species	1	0.4

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<b>SPECIMEN NUMBER 3</b>		
<i>Eubacterium lentum</i>	169	69.0
<i>Eggerthella lenta</i>	14	5.7
<i>Eubacterium</i> species	12	4.8
Do not perform anaerobic cultures	9	3.7
Anaerobic non-sporeforming gram positive rod	4	1.6
Do not process abscess cultures	4	1.6
Anaerobic gram positive rod	3	1.2
<i>Peptostreptococcus prevottii</i>	3	1.2
<i>Peptostreptococcus</i> species	3	1.2
<i>Clostridium histolyticum</i>	2	0.8
<i>Clostridium novyii</i>	2	0.8
<i>Clostridium tetani</i>	2	0.8
No <i>Bifidobacterium</i>	2	0.8
Not reported	2	0.8
Anaerobic gram pos rod, presumptive <i>Clostridium</i> sp.	1	0.4
Anaerobic gram positive rod, not <i>C. perfringens</i>	1	0.4

<i>Clostridium limosum</i>	1	0.4
<i>Clostridium</i> species, not <i>perfringens</i>	1	0.4
<i>Clostridium subterminale</i>	1	0.4
<i>Eubacterium limosum</i>	1	0.4
<i>Fusobacterium</i> species	1	0.4
<i>Fusobacterium varium</i>	1	0.4
Gram negative bacillus – do not ID	1	0.4
No anaerobe isolated	1	0.4
<i>Peptostreptococcus asaccharolyticus</i>	1	0.4
<i>Peptostreptococcus magnus</i>	1	0.4
Probable <i>Eubacterium lentum</i>	1	0.4
<i>Propionibacterium acnes</i>	1	0.4

<i>Klebsiella oxytoca</i>	241	98.4
Do not process abscess cultures	4	1.6

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**SPECIMEN NUMBER 4**

<i>Klebsiella pneumoniae</i>	243	99.2
Do not process urine cultures	1	0.4
<i>Enterobacter aerogenes</i>	1	0.4

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**SPECIMEN NUMBER 5**

<i>Neisseria gonorrhoeae</i>	232	94.7
Do not process genital tract cultures	9	3.7
No pathogens	1	0.4
Do not process genital cultures	1	0.4
Coagulase negative <i>Staphylococcus</i> species	1	0.4
Do not test for <i>Neisseria gonorrhoeae</i>	1	0.4

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**CHLAMYDIA SPECIMEN**

Positive for <i>Chlamydia trachomatis</i>	112	99.1
Positive Screen for <i>C. trachomatis/N. gonorrhoeae</i>	1	0.9

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**DIRECT ANTIGEN SPECIMEN**

A. Negative for Group A <i>Streptococcus</i>	62	100.0
B. Positive for <i>Streptococcus pneumoniae</i>	69	100.0