

December 2, 2003

Participant
Centers for Disease Control and Prevention (CDC)
Susceptibility Testing of *Mycobacterium tuberculosis* and Nontuberculous Mycobacteria Performance
Evaluation Program

Subject: Analyses of Participant Laboratory Results for the June 2003 Shipment

Dear Participant:

Enclosed are analyses of laboratory test results reported to the Centers for Disease Control and Prevention (CDC) by participant laboratories for strains of *Mycobacterium tuberculosis*-complex and the nontuberculous mycobacteria (NTM), *M. fortuitum*, shipped in June 2003. Participant laboratories received either four *M. tuberculosis* complex strains only or four *M. tuberculosis* strains and one NTM culture. Testing results were received and analyzed from 142 of 155 (92%) laboratories participating in this shipment.

The enclosed aggregate report is prepared in a format that will allow laboratories to compare their results with results obtained by other participants for the same strain using the same method, drug, and concentration. The first three pages contain descriptive information about the participant laboratories. We encourage you to circulate this report to personnel who are involved with drug susceptibility testing, reporting, or interpretation for *M. tuberculosis* and NTM.

The NTM strain in this performance evaluation is intended to provide an assessment of the various methods, drugs, and interpretations that are reported by laboratories that perform drug susceptibility testing for these different strains. The test results for the NTM strain also provide information on interlaboratory agreement with different test methods and will assist with efforts to develop standard methods for NTM drug susceptibility testing. By reporting these practices and test results, CDC is neither recommending nor endorsing these testing practices. Some of the test results reported by participants may, in fact, provide inappropriate or misleading information to the clinician. A consensus report by the American Thoracic Society and the National Committee for Clinical Laboratory Standards (NCCLS) approved standard are referenced to provide participants with recommendations for NTM test methods and drugs that have clinical relevance.

If you have any comments or suggestions on the results in this report please call me at (770) 488-8133.

Sincerely yours,

Bereneice M. Madison, Ph.D.
Division of Laboratory Systems
Public Health Practice Program Office

Enclosures

Analyses of the June 2003 Performance Evaluation Results for *M. tuberculosis* complex and Nontuberculous Mycobacteria Drug Susceptibility Testing Reported to the Centers for Disease Control and Prevention by Participating Laboratories

This report is an analysis of laboratory test results reported to the Centers for Disease Control and Prevention (CDC) by participant laboratories for the four *Mycobacterium tuberculosis* complex and one *M. fortuitum* strains shipped in June 2003. Participant laboratories received either four *M. tuberculosis* strains only or four *M. tuberculosis* and one NTM strain. Testing results were received and analyzed from 142 of 155 (92%) laboratories participating in this shipment.

Descriptive Information on Participant laboratories

Figure 1 shows the laboratory classification reported by 142 of the participants. Participants consisted of 78 health departments, 47 hospitals, 12 independents, and 5 "other" type of laboratories.

Figure 2 provides the distribution of the annual volume of *M. tuberculosis* isolates tested for drug susceptibilities by participating laboratories in calendar year 2002.

Figure 3 lists the biosafety levels reported by participant laboratories for *M. tuberculosis*. All laboratories are strongly encouraged to consult the CDC/NIH manual, Biosafety in Microbiological and Biomedical Laboratories (4th edition) for recommendations and to determine their correct biosafety level.

Figure 4 provides a breakdown of the test procedures used by the participating laboratories for *M. tuberculosis* drug susceptibility testing. Participants were asked to check test methods used. Some methods, such as the proportion method with Lowenstein-Jensen (LJ) media, may reflect procedures used by international participants. The 'other' methods listed were microtiter and L-J resistance ratio method.

Figure 5 provides information on the test procedures used by the participating laboratories testing *M. fortuitum*.

M. tuberculosis test results:

The aggregate test results are provided in separate tables, representing strains P, Q, R, and S to facilitate comparison among laboratories. Table 1 for the *M. tuberculosis* complex strains P, Q, R, and S is constructed to include the results for the radiometric (BACTEC 460TB), agar proportion (AP), Lowenstein Jensen (L-J) proportion, MGIT and other methods at each concentration of drug. The test results are listed in the appropriate (susceptible or resistant) columns with a corresponding total number of tests (Sum) column provided as a denominator for determining the level of consensus. This report contains all results reported by participating laboratories, including many drug concentrations with only one result.

In Table 1 the concentrations recommended by CDC and the NCCLS for the primary (isoniazid, rifampin, pyrazinamide, and ethambutol) and secondary (streptomycin, ethionamide, kanamycin, capreomycin, and p-amino-salicylic acid) antituberculosis drugs are highlighted for the conventional and radiometric methods. Participants should note that the new NCCLS approved standard (Susceptibility Testing of Mycobacteria, Nocardiae, and Other Aerobic Actinomycetes; Approved Standard, NCCLS document M24-A [ISBN 1-56238-500-3] NCCLS, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania 19087-1898, USA, 2003) recommends testing streptomycin as a secondary drug and also adds ofloxacin and rifabutin to the list of recommended secondary drugs. Participants should note that these recommended

combinations reflect the critical concentrations of antituberculosis drugs in 7H10 agar and those concentrations for the BACTEC method that directly correlate with the critical concentrations in the conventional method (1-4). When two concentrations are highlighted, such as for isoniazid and ethambutol, the lower concentration is the critical concentration that should always be included to determine whether the *M. tuberculosis* isolate is resistant.

For **Strain P**, there was complete agreement among all participants for INH susceptibility at both low and high concentrations (0.2 and 1.0 µg/ml) with AP. Similar results were reported by all participants testing with both BACTEC 460TB and MGIT with INH at 0.1 and 0.4 µg/ml concentrations. Ninety-eight percent (42/43) of participants reported rifampin resistant to 1.0 µg/ml by agar proportion (AP), and 99% (96/97) reported resistant to 2.0 µg/ml by the BACTEC 460TB method. There was complete agreement (20/20) among participants with MGIT. All participants (87/87) reported susceptible results to 2.5 µg/ml of ethambutol with BACTEC 460TB and 5.0 µg/ml with AP and 95% (19/20) reported susceptible results for the recommended concentration of ethambutol at 5.0 µg/ml with MGIT. There was also agreement among all participants (18) testing PZA at 100 µg/ml by MGIT, however there was 93% (76/82) agreement on susceptibility with BACTEC 460TB.

Strain Q was resistant to the low and higher concentrations of INH in AP, BACTEC 460TB and MGIT by all participants reporting results with these methods. Sixty-seven percent (4/6) of participants detected resistance at 0.2 µg/ml of INH with the L-J proportion method. **Strain Q** was susceptible to both rifampin in BACTEC 460TB and MGIT as well as the AP method. Susceptible results were reported for ethambutol by all participants using all methods except five percent (1/20) reported resistance with the MGIT method on this strain. Two percent (2/82) of participants reported resistance at 100 µg/ml for PZA with BACTEC 460TB, but there was complete agreement by all (18) participants with the MGIT method.

Strain R was fully susceptible to most drugs by laboratories reporting results with AP, BACTEC 460TB and L-J proportion methods, however five percent (1/20) of participants reported resistance at 0.1 µg/ml and thirty-three percent (1/3) reported resistance at 0.4 µg/ml with MGIT. Two percent (2/82) and 28% (5/18) of participants reported resistance to PZA at 100 µg/ml by the BACTEC 460TB and MGIT methods, respectively. Laboratories performing L-J proportion were in agreement on the susceptibility of **Strain R** to the primary drugs but 40% (2/5) reported resistance to the secondary drug streptomycin.

Strain S was reported as resistant by 92% (33/36) of laboratories reporting results for 0.2 µg/ml INH with the AP method and complete agreement on susceptibility by all (35) laboratories on INH 1.0 µg/ml; 96% (92/96) reported resistance to 0.1 µg/ml, but 3% (1/32) reported resistance at 0.4 µg/ml with BACTEC 460TB. For MGIT, 95% (19/20) reported resistance at 0.1 µg/ml while 14.3% (1/7) reported resistance at the higher 0.4 µg/ml concentration of INH. Interestingly, only 17% (1/6) of participants performing L-J proportion reported resistance at 0.2 µg/ml. There was agreement among participants on the susceptibility of rifampicin, ethambutol and PZA except 2% (2/96) of participants reported resistance to rifampicin 2.0 µg/ml with BACTEC 460TB and 1.2% (1/83) reported resistance to PZA with BACTEC 460 TB.

Our providing test results for all drugs that are reported to CDC should not be construed as a recommendation or endorsement for testing particular drugs or concentrations with patient isolates of *M. tuberculosis*-complex. It is assumed that some of the drugs are being tested for research purposes or potential use in the few referral institutions that may treat patients with *M. tuberculosis* isolates resistant to almost all standard drugs. Laboratories should not add drugs to their testing regimen without the consultation of physicians having expertise in treating multi-drug resistant tuberculosis. Laboratories may contact their local TB control program for referrals of physicians with experience and expertise in treating multi-drug resistant tuberculosis.

Nontuberculous Mycobacteria test results:

Aggregate test results are provided in Tables 2 and 3 for **Strain T**, *M. fortuitum*, to facilitate comparison among laboratories. Table 2 represents either single or multiple drug concentrations with "breakpoint" susceptibility test results and Table 3 provides quantitative MIC test results. More than 8 different methods were used to test for resistance in **Strain T** by 34 laboratories as shown in Figure 5. The most commonly used test methods for this strain were microtiter (13/34) and AP and E-test (7/34). Antimicrobial drugs to be tested for rapid growers are listed in Table 8 (NCCLS document M24-A). They include amikacin, ceftazidime, ciprofloxacin, doxycycline, clarithromycin, imipenem, linezolid, sulfamethoxazole and tobramycin. **Strain T** (*M. fortuitum*) was determined in general by most participants to be resistant to clarithromycin, azithromycin, doxycycline, minocycline, tobramycin by microtiter, E-test and AP methods and susceptible to ceftazidime, ciprofloxacin, amikacin, imipenem and sulfamethoxazole by these methods. *Mycobacterium fortuitum* and related species are responsible for a number of different types of infections including osteomyelitis, cellulitis, surgical wounds and post traumatic-soft tissue infections.

The addition of NTM strains to this performance evaluation program should not be interpreted as a recommendation for laboratories to adopt NTM drug susceptibility testing, especially if the laboratory has limited experience with these tests and methods. We encourage laboratories that perform NTM drug susceptibility testing to consult recommendations, references, and physicians with expertise in infectious diseases when selecting test methods, drugs, and test interpretations.

Special thanks to the following persons for reviewing this report: Nancy G. Warren, Ph.D., Pennsylvania Department of Public Health; Richard Wallace, M.D., Ph.D., and Barbara Brown-Elliott, M.S., University of Texas at Tyler, TX; Wendy Gross, M.S., TB Reference Laboratory, West Haven, CT.

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Figure 1. Primary Classification of Participating Laboratories

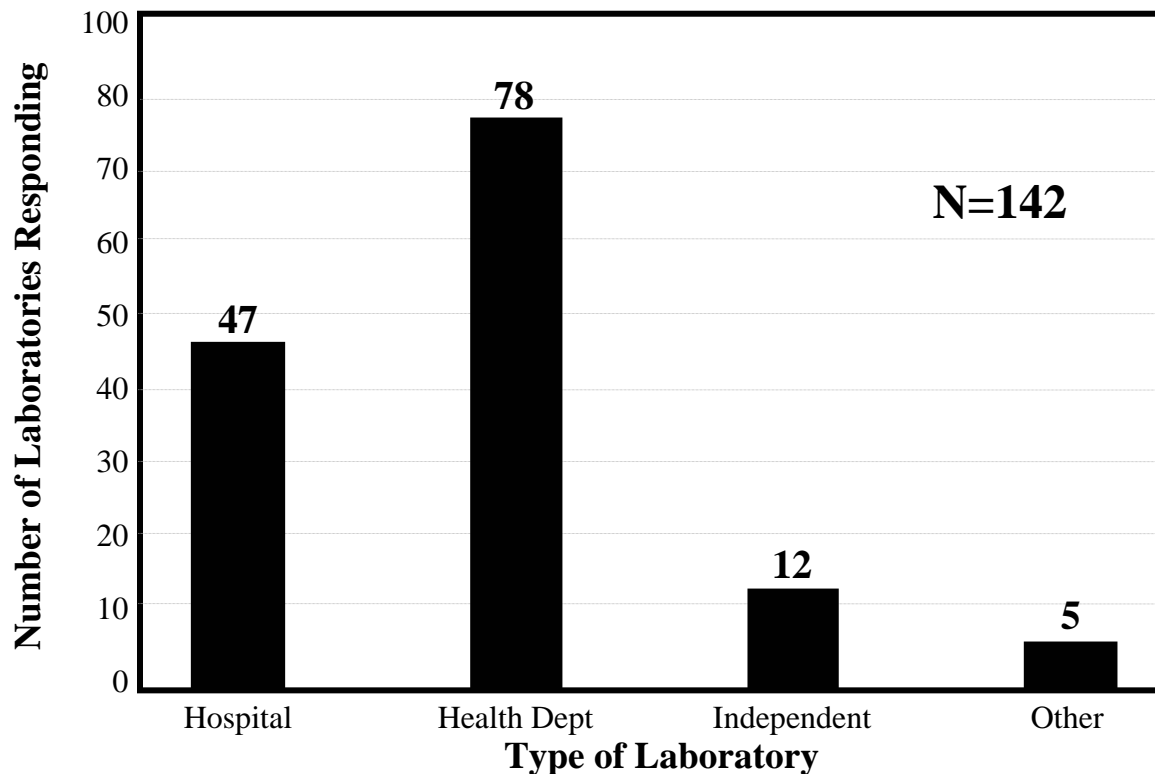
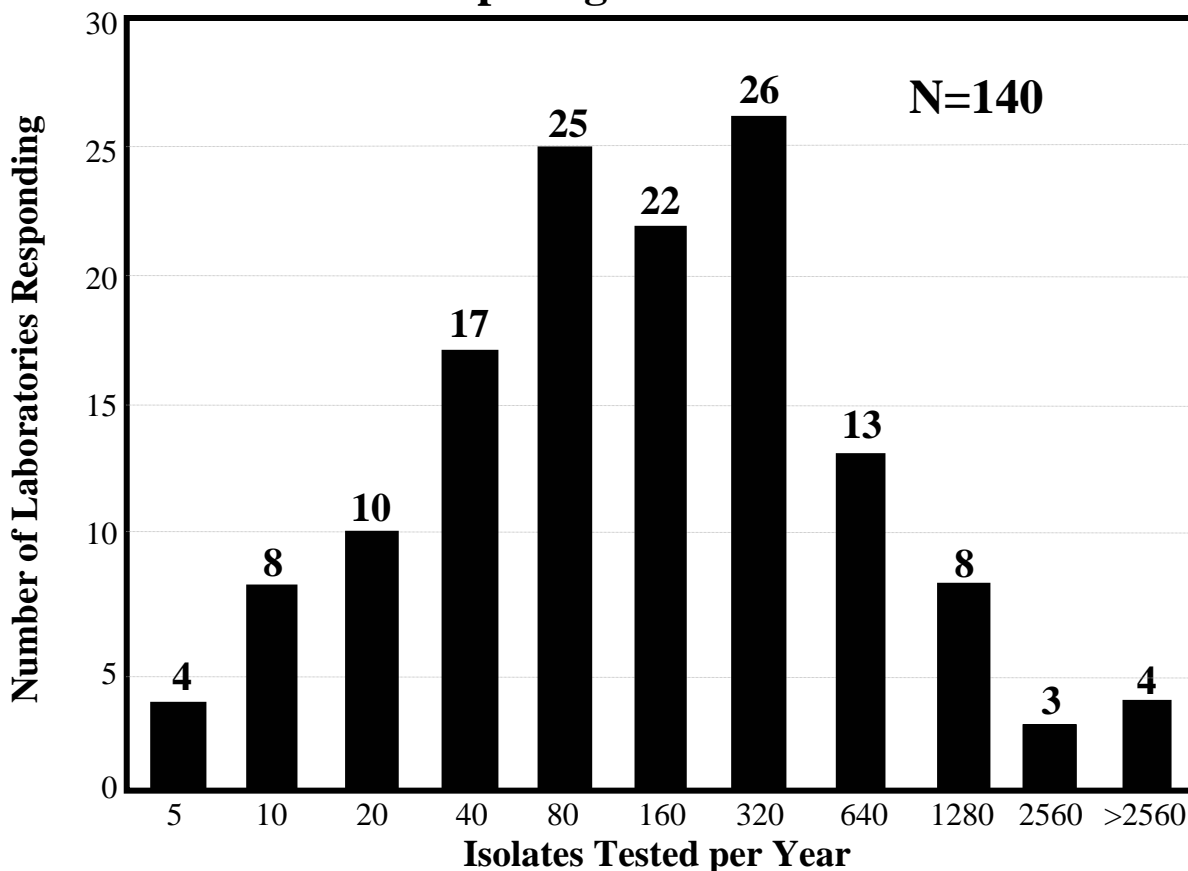
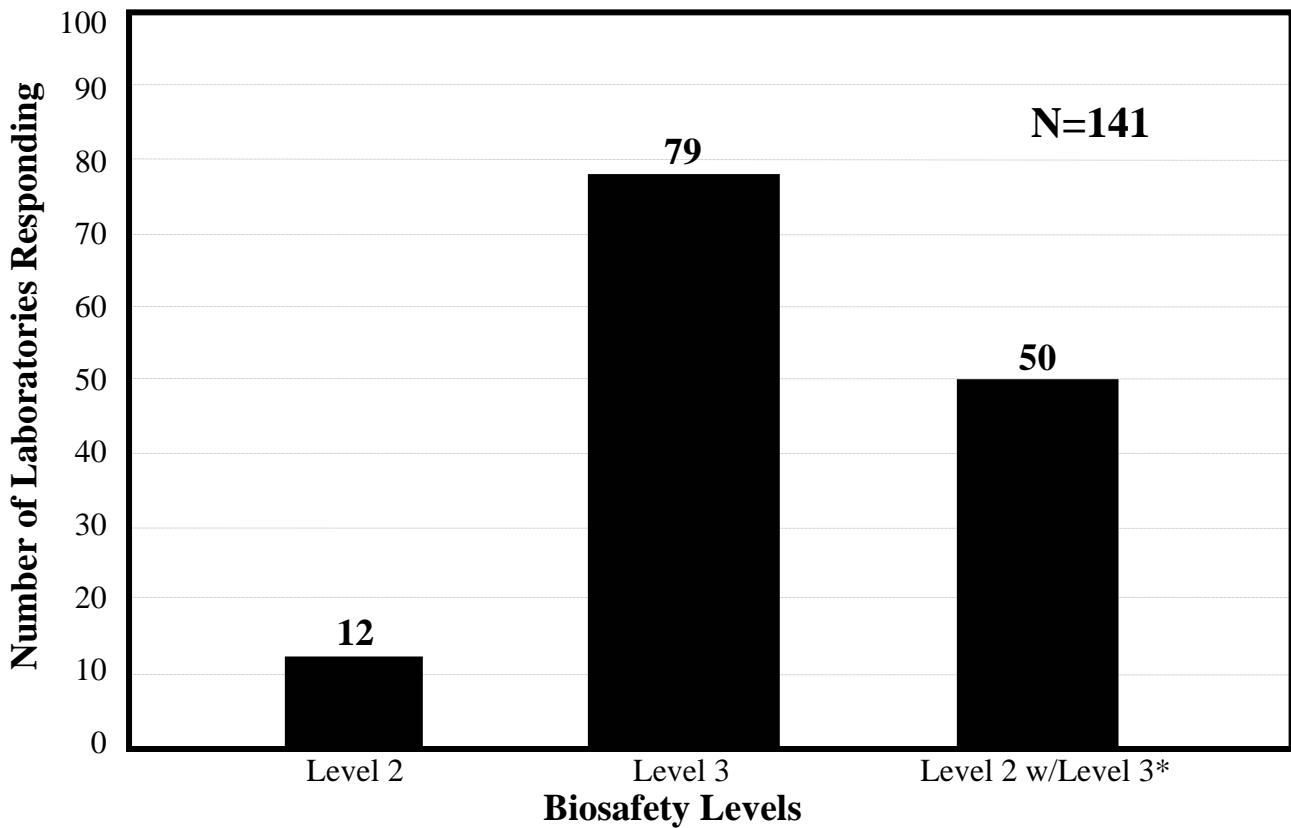


Figure 2. 2002 Annual Volume of *M. tuberculosis* Isolates for Participating Laboratories



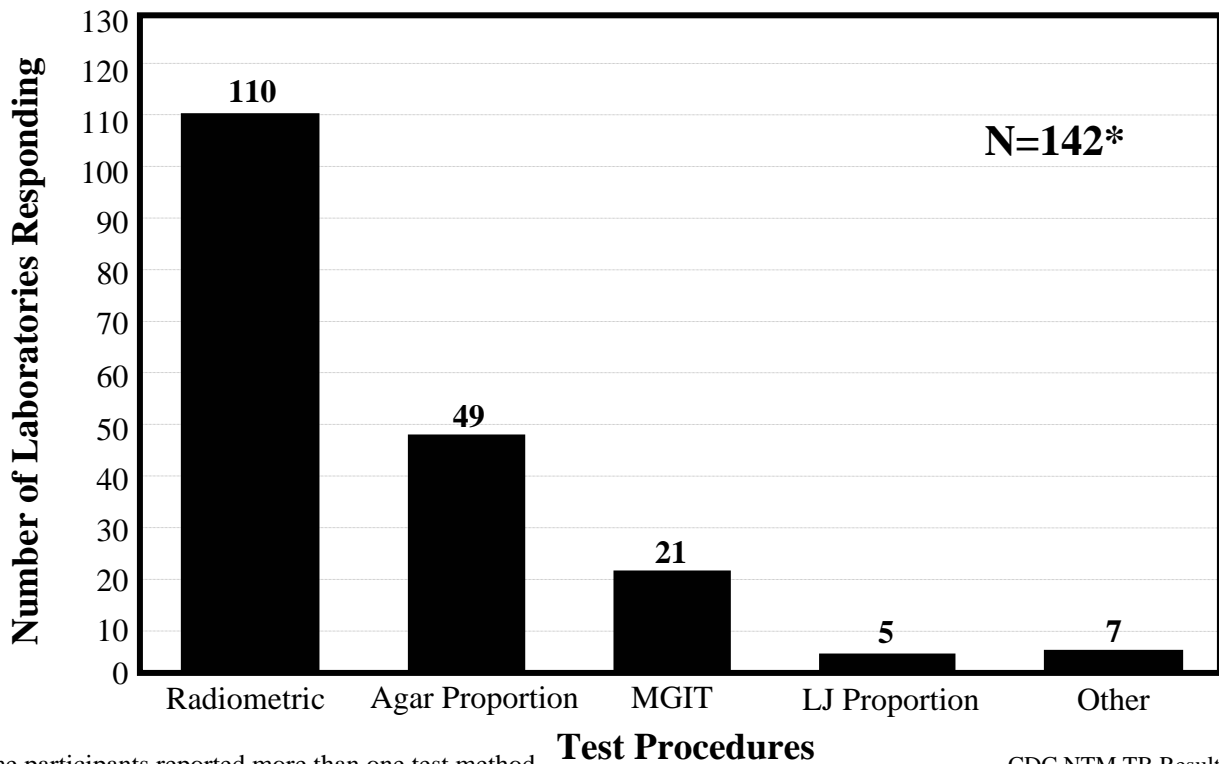
Group labels indicate upper limit of the group.

Figure 3. Biosafety Levels of Participating Laboratories for *M. tuberculosis*



* Biosafety level 2 for facilities with level 3 containment equipment

Figure 4. Test Procedures used by Laboratories for *M. tuberculosis*



* Some participants reported more than one test method

Figure 5. Test Procedures used by Laboratories for Strain T - *M. fortuitum*

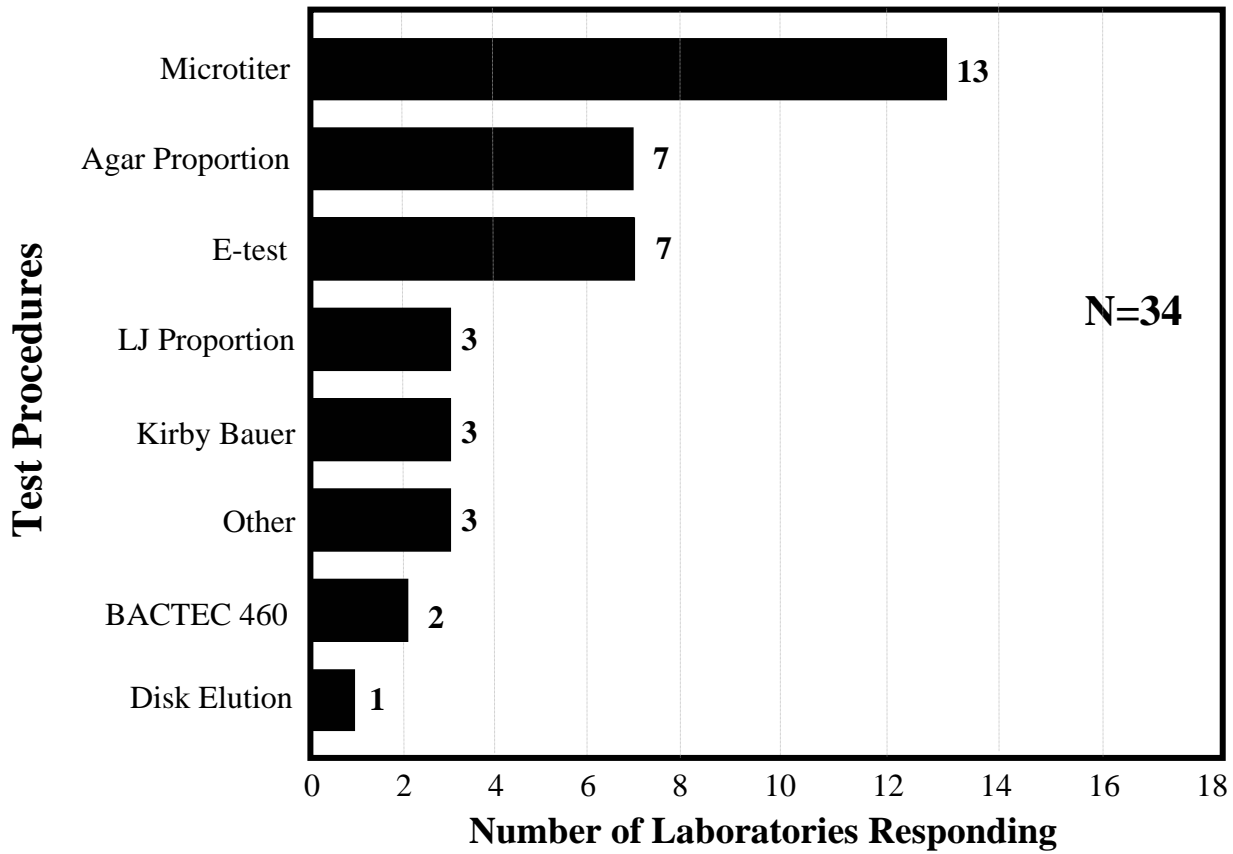


Table 1. Participant Results for Culture P, *M. tuberculosis*

DRUG	Conc.	Test Method																
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results				
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum		
Isoniazid	0.05															1		1
Isoniazid	0.10				96		96					20		20		2		2
Isoniazid	0.12	1		1														
Isoniazid	0.20	39		39	4		4	6		6	1		1		2		2	
Isoniazid	0.40				25		25				3		3					
Isoniazid	0.50	1		1				1		1								
Isoniazid	1.00	37		37	3		3	3		3	1		1		1		1	
Isoniazid	4.00				1		1											
Isoniazid	5.00	5		5														
Isoniazid	10.00							2		2								
Isoniazid	100.00							1		1								
Rifampin	0.10						1	1										
Rifampin	0.50						2	2										
Rifampin	1.00	1	42	43			8	8	1	1		20	20		3	3		
Rifampin	2.00				1	96	97					1	1					
Rifampin	5.00	1	4	5			2	2		1	1							
Rifampin	10.00						1	1										
Rifampin	14.00															1	1	
Rifampin	28.00															1	1	
Rifampin	40.00							2	3	5								
Rifampin	50.00								1	1								
Rifampin	56.00															1	1	
Rifampin	80.00						1	1										
Pyrazinamide	64.00															1	1	
Pyrazinamide	100.00				76	6	82	1		1	18		18		2		2	
Pyrazinamide	200.00							1		1								
Pyrazinamide	300.00				1		1											
Pyrazinamide	400.00							1		1								
Ethambutol	1.00							1		1								
Ethambutol	1.60														1		1	
Ethambutol	2.00				2		2	6		6								
Ethambutol	2.50				87		87				1		1					
Ethambutol	3.20														1		1	
Ethambutol	3.75				3		3											
Ethambutol	4.00				1		1											
Ethambutol	5.00	36		36	8		8	1		1	19	1	20		1		1	
Ethambutol	6.40														1		1	
Ethambutol	7.50	6		6	13		13											
Ethambutol	10.00	11		11														
Ethambutol	300.00				1		1											

Table 1. Participant Results for Culture P, *M. tuberculosis*

DRUG	Conc.	Test Method																
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results				
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum		
Streptomycin	1.00				1		1	1		1			16		16			
Streptomycin	2.00	40		40	89		89						1		1	1		1
Streptomycin	3.00				1		1											
Streptomycin	4.00	1		1	1		1	5		5			2		2			
Streptomycin	5.00							1		1								
Streptomycin	6.00				17		17											
Streptomycin	7.50																1	1
Streptomycin	10.00	28		28				1		1						1		1
Streptomycin	15.00															1		1
Streptomycin	30.00															1		1
Streptomycin	240.00				1		1											
Ethionamide	1.00	1		1														
Ethionamide	1.25				4		4											
Ethionamide	2.00	1		1														
Ethionamide	2.50				1		1											
Ethionamide	5.00	27		27	4		4											
Ethionamide	10.00	6		6												2		2
Ethionamide	20.00							1		1						1		1
Ethionamide	40.00							2		2						1		1
Kanamycin	2.50				1		1											
Kanamycin	4.00	1		1														
Kanamycin	5.00	12		12	4		4											
Kanamycin	6.00	19		19												1		1
Kanamycin	10.00							1		1								
Kanamycin	20.00							1		1								
Kanamycin	40.00							1		1								
Capreomycin	0.50															1		1
Capreomycin	1.00															1		1
Capreomycin	1.25				1		1											
Capreomycin	2.50				1		1											
Capreomycin	5.00	1		1	5		5											
Capreomycin	10.00	24		24														
Capreomycin	12.50																1	1
Capreomycin	16.00				1		1											
Capreomycin	25.00															1		1
Capreomycin	40.00							1		1								
Capreomycin	50.00															1		1
Cycloserine	12.00															1		1
Cycloserine	20.00							1		1								
Cycloserine	24.00															1		1
Cycloserine	25.00	1		1														
Cycloserine	30.00	14		14				2		2								
Cycloserine	40.00							1		1								
Cycloserine	48.00															1		1
Cycloserine	50.00	1		1														
Cycloserine	60.00	1		1														

Table 1. Participant Results for Culture P, *M. tuberculosis*

DRUG	Conc.	Test Method																
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results				
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum		
p-Aminosalicylic acid	0.50									3		3						
p-Aminosalicylic acid	1.00									2		2						
p-Aminosalicylic acid	2.00	18		18												1		1
p-Aminosalicylic acid	4.00				1		1											
p-Aminosalicylic acid	8.00	4		4														
p-Aminosalicylic acid	10.00	3		3														
Amikacin	0.50															1		1
Amikacin	1.00	1		1	1		1								1		1	
Amikacin	2.00	2		2	3		3											
Amikacin	2.50	1		1	1		1											
Amikacin	4.00	4	1	5														
Amikacin	5.00				1		1											
Amikacin	6.00	5		5											1		1	
Amikacin	7.50														1		1	
Amikacin	8.00				1		1											
Amikacin	12.00	2		2														
Amikacin	15.00														1		1	
Amikacin	30.00														1		1	
Ofloxacin	0.50														1		1	
Ofloxacin	1.00	4		4	2		2								1		1	
Ofloxacin	1.25				1		1								1		1	
Ofloxacin	2.00	9	1	10	7		7	1		1								
Ofloxacin	2.50														1		1	
Ofloxacin	4.00	3		3	1		1											
Ofloxacin	5.00														1		1	
Ofloxacin	8.00				1		1											
Ciprofloxacin	0.50														1		1	
Ciprofloxacin	1.00	3		3	4		4								1		1	
Ciprofloxacin	1.25				1		1											
Ciprofloxacin	1.60														1		1	
Ciprofloxacin	2.00	11	1	12	3		3								1		1	
Ciprofloxacin	3.20														1		1	
Ciprofloxacin	4.00				1		1											
Ciprofloxacin	6.40														1		1	
Levofloxacin	0.30	1		1														
Levofloxacin	0.60	1		1														
Levofloxacin	1.00	1		1	1		1											
Levofloxacin	2.00				3		3											
Levofloxacin	8.00				1		1											
Rifabutin	0.05						1	1										
Rifabutin	0.25						1	1										
Rifabutin	0.50	1	2	3	1	2	3											
Rifabutin	1.00	2		2	2		2											
Rifabutin	2.00	5		5														
Clofazimine	0.12				1		1											
Clofazimine	0.50				2		2								1		1	
Clofazimine	1.00	1		1											1		1	

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Isoniazid	0.05															1	1
Isoniazid	0.10					96	96						20	20		2	2
Isoniazid	0.12		1	1													
Isoniazid	0.20		39	39		5	5	2	4	6		1	1		1	1	
Isoniazid	0.40					32	32					8	8				
Isoniazid	0.50		1	1		1	1		1	1							
Isoniazid	1.00		39	39		5	5		3	3		1	1				
Isoniazid	2.00					1	1	2									
Isoniazid	2.50					1	1	1									
Isoniazid	4.00					1	1	1									
Isoniazid	5.00	2	3	5		1	1	2									
Isoniazid	10.00					1	1	1	2		2						
Isoniazid	100.00								1		1						
Rifampin	0.10					1	1	1									
Rifampin	0.50					2	2	2									
Rifampin	1.00	43		43		8	8	8		1	1	20		20	1	1	
Rifampin	2.00					96	96	96				1		1			
Rifampin	5.00	5		5					1		1						
Rifampin	14.00														1	1	
Rifampin	28.00														1	1	
Rifampin	40.00								5		5						
Rifampin	50.00								1		1						
Rifampin	56.00														1	1	
Rifampin	80.00					1	1	1									
Pyrazinamide	64.00														1	1	
Pyrazinamide	100.00					80	2	82	1		1	18		18	2	2	
Pyrazinamide	200.00								1		1						
Pyrazinamide	300.00					1	1	1									
Pyrazinamide	400.00								1		1						
Ethambutol	1.00								1		1						
Ethambutol	1.60														1	1	
Ethambutol	2.00					2	2	2	6		6						
Ethambutol	2.50					87	87	87				1		1			
Ethambutol	3.20														1	1	
Ethambutol	3.75					3	3	3									
Ethambutol	4.00					1	1	1									
Ethambutol	5.00	36		36		8	8	8	1		1	19	1	20	1	1	
Ethambutol	6.40														1	1	
Ethambutol	7.50	6		6		13	13	13									
Ethambutol	10.00	10		10													
Ethambutol	300.00					1	1	1									

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Streptomycin	1.00				1		1	1		1		16		16			
Streptomycin	2.00	39		39	88		88					1		1			
Streptomycin	3.00				1		1										
Streptomycin	4.00	1		1	1		1	5		5	2		2				
Streptomycin	5.00							1		1							
Streptomycin	6.00				17		17										
Streptomycin	7.50														1		1
Streptomycin	10.00	27		27				1		1							
Streptomycin	15.00														1		1
Streptomycin	30.00														1		1
Streptomycin	240.00				1		1										
Ethionamide	1.00	1		1													
Ethionamide	1.25				2	1	3										
Ethionamide	2.00	1		1													
Ethionamide	2.50				1		1										
Ethionamide	5.00	26		26	4		4										
Ethionamide	10.00	6		6											1		1
Ethionamide	20.00							1		1					1		1
Ethionamide	40.00							2		2					1		1
Kanamycin	4.00	1		1													
Kanamycin	5.00	12		12	4		4										
Kanamycin	6.00	19		19													
Kanamycin	10.00							1		1							
Kanamycin	20.00							1		1							
Kanamycin	40.00							1		1							
Capreomycin	0.50														1		1
Capreomycin	1.00														1		1
Capreomycin	1.25				1		1										
Capreomycin	5.00	1		1	5		5										
Capreomycin	10.00	23		23													
Capreomycin	12.50														1		1
Capreomycin	16.00				1		1										
Capreomycin	25.00														1		1
Capreomycin	40.00							1		1							
Capreomycin	50.00														1		1
Cycloserine	12.00														1		1
Cycloserine	20.00							1		1							
Cycloserine	24.00														1		1
Cycloserine	25.00	1		1													
Cycloserine	30.00	14		14				2		2							
Cycloserine	40.00							1		1							
Cycloserine	48.00														1		1
Cycloserine	50.00	1		1													
Cycloserine	60.00	1		1													
p-Aminosalicylic acid	0.50							3		3							
p-Aminosalicylic acid	1.00							2		2							
p-Aminosalicylic acid	2.00	17		17													
p-Aminosalicylic acid	4.00				1		1										
p-Aminosalicylic acid	8.00	4		4													
p-Aminosalicylic acid	10.00	3		3													

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method																
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results				
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum		
Amikacin	0.50															1		1
Amikacin	1.00	1		1												1		1
Amikacin	2.00	2		2	3		3											
Amikacin	2.50	1		1	1		1											
Amikacin	4.00	4		4														
Amikacin	5.00				1		1											
Amikacin	6.00	5		5														
Amikacin	7.50															1		1
Amikacin	8.00				1		1											
Amikacin	12.00	2		2														
Amikacin	15.00															1		1
Amikacin	30.00															1		1
Ofloxacin	0.50															1		1
Ofloxacin	1.00	4		4	2		2									1		1
Ofloxacin	1.25															1		1
Ofloxacin	2.00	9		9	7		7	1		1								
Ofloxacin	2.50															1		1
Ofloxacin	4.00	3		3	1		1											
Ofloxacin	5.00															1		1
Ofloxacin	8.00				1		1											
Ciprofloxacin	0.50															1		1
Ciprofloxacin	1.00	3		3	3		3									1		1
Ciprofloxacin	1.60															1		1
Ciprofloxacin	2.00	12		12	3		3											
Ciprofloxacin	3.20															1		1
Ciprofloxacin	4.00				1		1											
Ciprofloxacin	6.40															1		1
Levofloxacin	0.30	1		1														
Levofloxacin	0.60	1		1														
Levofloxacin	1.00	1		1	1		1											
Levofloxacin	2.00				3		3											
Levofloxacin	8.00				1		1											
Rifabutin	0.50	2		2	1		1											
Rifabutin	1.00	2		2	1		1											
Rifabutin	2.00	5		5														
Clofazimine	0.12				1		1											
Clofazimine	0.50				3		3									1		1
Clofazimine	1.00	1		1												1		1

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Isoniazid	0.05															1	1
Isoniazid	0.10					96	96						20	20		2	2
Isoniazid	0.12		1	1													
Isoniazid	0.20		39	39		5	5	2	4	6		1	1		1	1	
Isoniazid	0.40					32	32					8	8				
Isoniazid	0.50		1	1		1	1		1	1							
Isoniazid	1.00		39	39		5	5		3	3		1	1				
Isoniazid	2.00					1	1	2									
Isoniazid	2.50					1	1	1									
Isoniazid	4.00					1	1	1									
Isoniazid	5.00	2	3	5		1	1	2									
Isoniazid	10.00					1	1	1	2		2						
Isoniazid	100.00								1		1						
Rifampin	0.10					1	1	1									
Rifampin	0.50					2	2	2									
Rifampin	1.00	43		43		8	8		1	1		20		20	1	1	
Rifampin	2.00					96	96					1		1			
Rifampin	5.00	5		5					1		1						
Rifampin	14.00														1	1	
Rifampin	28.00														1	1	
Rifampin	40.00								5		5						
Rifampin	50.00								1		1						
Rifampin	56.00														1	1	
Rifampin	80.00					1	1	1									
Pyrazinamide	64.00														1	1	
Pyrazinamide	100.00					80	2	82	1		1	18		18	2	2	
Pyrazinamide	200.00								1		1						
Pyrazinamide	300.00					1	1	1									
Pyrazinamide	400.00								1		1						
Ethambutol	1.00								1		1						
Ethambutol	1.60														1	1	
Ethambutol	2.00					2	2	2	6		6						
Ethambutol	2.50					87	87					1		1			
Ethambutol	3.20														1	1	
Ethambutol	3.75					3	3	3									
Ethambutol	4.00					1	1	1									
Ethambutol	5.00	36		36		8	8		1		1	19	1	20	1	1	
Ethambutol	6.40														1	1	
Ethambutol	7.50	6		6		13	13										
Ethambutol	10.00	10		10													
Ethambutol	300.00					1	1	1									

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Streptomycin	1.00				1		1	1		1		16		16			
Streptomycin	2.00	39		39	88		88					1		1			
Streptomycin	3.00				1		1										
Streptomycin	4.00	1		1	1		1	5		5	2		2				
Streptomycin	5.00							1		1							
Streptomycin	6.00				17		17										
Streptomycin	7.50														1		1
Streptomycin	10.00	27		27				1		1							
Streptomycin	15.00														1		1
Streptomycin	30.00														1		1
Streptomycin	240.00				1		1										
Ethionamide	1.00	1		1													
Ethionamide	1.25				2	1	3										
Ethionamide	2.00	1		1													
Ethionamide	2.50				1		1										
Ethionamide	5.00	26		26	4		4										
Ethionamide	10.00	6		6											1		1
Ethionamide	20.00							1		1					1		1
Ethionamide	40.00							2		2					1		1
Kanamycin	4.00	1		1													
Kanamycin	5.00	12		12	4		4										
Kanamycin	6.00	19		19													
Kanamycin	10.00							1		1							
Kanamycin	20.00							1		1							
Kanamycin	40.00							1		1							
Capreomycin	0.50														1		1
Capreomycin	1.00														1		1
Capreomycin	1.25				1		1										
Capreomycin	5.00	1		1	5		5										
Capreomycin	10.00	23		23													
Capreomycin	12.50														1		1
Capreomycin	16.00				1		1										
Capreomycin	25.00														1		1
Capreomycin	40.00							1		1							
Capreomycin	50.00														1		1
Cycloserine	12.00														1		1
Cycloserine	20.00							1		1							
Cycloserine	24.00														1		1
Cycloserine	25.00	1		1													
Cycloserine	30.00	14		14				2		2							
Cycloserine	40.00							1		1							
Cycloserine	48.00														1		1
Cycloserine	50.00	1		1													
Cycloserine	60.00	1		1													
p-Aminosalicylic acid	0.50							3		3							
p-Aminosalicylic acid	1.00							2		2							
p-Aminosalicylic acid	2.00	17		17													
p-Aminosalicylic acid	4.00				1		1										
p-Aminosalicylic acid	8.00	4		4													
p-Aminosalicylic acid	10.00	3		3													

Table 1. Participant Results for Culture Q, *M. tuberculosis*

DRUG	Conc.	Test Method																
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results				
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum		
Amikacin	0.50															1		1
Amikacin	1.00	1		1												1		1
Amikacin	2.00	2		2	3		3											
Amikacin	2.50	1		1	1		1											
Amikacin	4.00	4		4														
Amikacin	5.00				1		1											
Amikacin	6.00	5		5														
Amikacin	7.50															1		1
Amikacin	8.00				1		1											
Amikacin	12.00	2		2														
Amikacin	15.00															1		1
Amikacin	30.00															1		1
Ofloxacin	0.50															1		1
Ofloxacin	1.00	4		4	2		2									1		1
Ofloxacin	1.25															1		1
Ofloxacin	2.00	9		9	7		7	1		1								
Ofloxacin	2.50															1		1
Ofloxacin	4.00	3		3	1		1											
Ofloxacin	5.00															1		1
Ofloxacin	8.00				1		1											
Ciprofloxacin	0.50															1		1
Ciprofloxacin	1.00	3		3	3		3									1		1
Ciprofloxacin	1.60															1		1
Ciprofloxacin	2.00	12		12	3		3											
Ciprofloxacin	3.20															1		1
Ciprofloxacin	4.00				1		1											
Ciprofloxacin	6.40															1		1
Levofloxacin	0.30	1		1														
Levofloxacin	0.60	1		1														
Levofloxacin	1.00	1		1	1		1											
Levofloxacin	2.00				3		3											
Levofloxacin	8.00				1		1											
Rifabutin	0.50	2		2	1		1											
Rifabutin	1.00	2		2	1		1											
Rifabutin	2.00	5		5														
Clofazimine	0.12				1		1											
Clofazimine	0.50				3		3									1		1
Clofazimine	1.00	1		1												1		1

Table 1. Participant Results for Culture R, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Isoniazid	0.05															1	1
Isoniazid	0.10				96		96					19	1	20		2	2
Isoniazid	0.12	1		1													
Isoniazid	0.20	34		34	3		3	6		6	1		1		1		1
Isoniazid	0.40				27		27				2	1	3				
Isoniazid	0.50	1		1				1		1							
Isoniazid	1.00	30		30	2		2	3		3	1		1				
Isoniazid	4.00				1		1										
Isoniazid	5.00	4		4													
Isoniazid	10.00							2		2							
Isoniazid	100.00							1		1							
Rifampin	0.10				1		1										
Rifampin	0.50				2		2										
Rifampin	1.00	36		36	8		8	1		1	20		20	1		1	
Rifampin	2.00				95		95				1		1				
Rifampin	5.00	4		4				1		1							
Rifampin	14.00														1		1
Rifampin	28.00														1		1
Rifampin	40.00							5		5							
Rifampin	50.00							1		1							
Rifampin	56.00														1		1
Rifampin	80.00				1		1										
Pyrazinamide	64.00														1		1
Pyrazinamide	100.00				80	2	82	1		1	13	5	18	2		2	
Pyrazinamide	200.00							1		1							
Pyrazinamide	300.00				1		1										
Pyrazinamide	400.00							1		1							
Ethambutol	1.00							1		1							
Ethambutol	1.60														1		1
Ethambutol	2.00				2		2	6		6							
Ethambutol	2.50				87		87				1		1				
Ethambutol	3.20														1		1
Ethambutol	3.75				3		3										
Ethambutol	4.00				1		1										
Ethambutol	5.00	30		30	7		7	1		1	19	1	20				
Ethambutol	6.40														1		1
Ethambutol	7.50	6		6	13		13										
Ethambutol	10.00	8		8													
Ethambutol	300.00				1		1										
Streptomycin	1.00				1		1	1		1	16		16				
Streptomycin	2.00	32		32	87		87				1		1				
Streptomycin	3.00				1		1										
Streptomycin	4.00	1		1	1		1	3	2	5	2		2				
Streptomycin	5.00							1		1							
Streptomycin	6.00				17		17										
Streptomycin	7.50														1		1
Streptomycin	10.00	22		22				1		1							
Streptomycin	15.00														1		1
Streptomycin	30.00														1		1
Streptomycin	240.00				1		1										

Table 1. Participant Results for Culture R, *M. tuberculosis*

DRUG	Conc.	Test Method														
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results		
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Ethionamide	1.00		1	1												
Ethionamide	1.25				1		1									
Ethionamide	2.00	1		1												
Ethionamide	5.00	18		18	4		4									
Ethionamide	10.00	6		6										1		1
Ethionamide	20.00							1		1				1		1
Ethionamide	40.00							2		2				1		1
Kanamycin	4.00	1		1												
Kanamycin	5.00	7		7	2		2									
Kanamycin	6.00	15		15												
Kanamycin	10.00							1		1						
Kanamycin	20.00							1		1						
Kanamycin	40.00							1		1						
Capreomycin	0.50													1		1
Capreomycin	1.00													1		1
Capreomycin	5.00	1		1	4		4									
Capreomycin	10.00	16		16												
Capreomycin	12.50													1		1
Capreomycin	16.00				1		1									
Capreomycin	25.00													1		1
Capreomycin	40.00							1		1						
Capreomycin	50.00													1		1
Cycloserine	12.00													1		1
Cycloserine	20.00							1		1						
Cycloserine	24.00													1		1
Cycloserine	25.00	1		1												
Cycloserine	30.00	10		10				2		2						
Cycloserine	40.00							1		1						
Cycloserine	48.00													1		1
Cycloserine	50.00	1		1												
Cycloserine	60.00	1		1												
p-Aminosalicylic acid	0.50							3		3						
p-Aminosalicylic acid	1.00							2		2						
p-Aminosalicylic acid	2.00	14		14												
p-Aminosalicylic acid	4.00				1		1									
p-Aminosalicylic acid	8.00	3		3												
p-Aminosalicylic acid	10.00	2		2												
Amikacin	0.50													1		1
Amikacin	1.00														1	1
Amikacin	2.00	1		1	3		3									
Amikacin	2.50	1		1												
Amikacin	4.00	3		3												
Amikacin	5.00				1		1									
Amikacin	6.00	4		4												
Amikacin	7.50													1		1
Amikacin	8.00				1		1									
Amikacin	12.00	2		2												
Amikacin	15.00													1		1
Amikacin	30.00													1		1

Table 1. Participant Results for Culture R, *M. tuberculosis*

DRUG	Conc.	Test Method														
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results		
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Ofloxacin	0.50														1	1
Ofloxacin	1.00	2		2	1		1							1		1
Ofloxacin	1.25													1		1
Ofloxacin	2.00	7		7	5		5	1		1						
Ofloxacin	2.50													1		1
Ofloxacin	4.00	2		2	1		1							1		1
Ofloxacin	5.00													1		1
Ofloxacin	8.00				1		1									
Ciprofloxacin	0.50													1		1
Ciprofloxacin	1.00	1		1	2		2							1		1
Ciprofloxacin	1.60													1		1
Ciprofloxacin	2.00	10		10	3		3							1		1
Ciprofloxacin	3.20													1		1
Ciprofloxacin	4.00				1		1									
Ciprofloxacin	6.40													1		1
Levofloxacin	0.30		1	1												
Levofloxacin	0.60	1		1												
Levofloxacin	1.00				1		1									
Levofloxacin	2.00				2		2									
Levofloxacin	8.00				1		1									
Rifabutin	0.50	1		1												
Rifabutin	1.00	1		1	1		1									
Rifabutin	2.00	3		3												
Clofazimine	0.12				1		1									
Clofazimine	0.50				1		1							1		1
Clofazimine	1.00	1		1										1		1

Table 1. Participant Results for Culture S, *M. tuberculosis*

DRUG	Conc.	Test Method															
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results			
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	
Isoniazid	0.05															1	1
Isoniazid	0.10				4	92	96				1	19	20			2	2
Isoniazid	0.12		1	1													
Isoniazid	0.20	3	33	36	3	2	5	5	1	6		1	1	1			1
Isoniazid	0.40				31	1	32				6	1	7	1			1
Isoniazid	0.50	1		1	1		1	1		1							
Isoniazid	1.00	35		35	4		4	3		3	1		1				
Isoniazid	2.50				1		1										
Isoniazid	4.00					1	1										
Isoniazid	5.00	5		5	1		1										
Isoniazid	10.00							2		2							
Isoniazid	100.00							1		1							
Rifampin	0.10				1		1										
Rifampin	0.50				2		2										
Rifampin	1.00	39		39	8		8		1	1	20		20	1			1
Rifampin	2.00				94	2	96				1		1				
Rifampin	5.00	4		4				1		1							
Rifampin	14.00													1			1
Rifampin	28.00													1			1
Rifampin	40.00							5		5							
Rifampin	50.00							1		1							
Rifampin	56.00													1			1
Rifampin	80.00				1		1										
Pyrazinamide	64.00													1			1
Pyrazinamide	100.00				82	1	83	1		1	18		18	2			2
Pyrazinamide	200.00							1		1							
Pyrazinamide	300.00				1		1										
Pyrazinamide	400.00							1		1							
Ethambutol	1.00							1		1							
Ethambutol	1.60													1			1
Ethambutol	2.00				2		2	6		6							
Ethambutol	2.50				87		87				1		1				
Ethambutol	3.20													1			1
Ethambutol	3.75				3		3										
Ethambutol	4.00				1		1										
Ethambutol	5.00	32		32	8		8	1		1	20		20	1			1
Ethambutol	6.40													1			1
Ethambutol	7.50	6		6	13		13										
Ethambutol	10.00	9		9													
Ethambutol	300.00				1		1										

Table 1. Participant Results for Culture S, *M. tuberculosis*

DRUG	Conc.	Test Method														
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results		
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Streptomycin	1.00				1		1	1		1			16			16
Streptomycin	2.00	35		35	87		87						1			1
Streptomycin	3.00				1		1									
Streptomycin	4.00	1		1	1		1	3	2	5			2			2
Streptomycin	5.00							1		1						
Streptomycin	6.00				17		17									
Streptomycin	7.50													1		1
Streptomycin	10.00	25		25				1		1						
Streptomycin	15.00													1		1
Streptomycin	30.00													1		1
Streptomycin	240.00				1		1									
Ethionamide	1.00		1	1												
Ethionamide	1.25				1		1									
Ethionamide	2.00	1		1												
Ethionamide	2.50					1	1									
Ethionamide	5.00	18	1	19	1	2	3									
Ethionamide	10.00	5	1	6											1	1
Ethionamide	20.00								1	1					1	1
Ethionamide	40.00							2		2				1		1
Kanamycin	4.00	1		1												
Kanamycin	5.00	10		10	2		2									
Kanamycin	6.00	17		17												
Kanamycin	10.00							1		1						
Kanamycin	20.00							1		1						
Kanamycin	40.00							1		1						
Capreomycin	0.50													1		1
Capreomycin	1.00													1		1
Capreomycin	5.00				5		5									
Capreomycin	10.00	20		20												
Capreomycin	12.50														1	1
Capreomycin	16.00				1		1									
Capreomycin	25.00													1		1
Capreomycin	40.00							1		1						
Capreomycin	50.00													1		1
Cycloserine	12.00													1		1
Cycloserine	20.00							1		1						
Cycloserine	24.00													1		1
Cycloserine	30.00	13		13				2		2						
Cycloserine	40.00							1		1						
Cycloserine	48.00													1		1
Cycloserine	60.00	1		1												
p-Aminosalicylic acid	0.50							3		3						
p-Aminosalicylic acid	1.00							2		2						
p-Aminosalicylic acid	2.00	16		16												
p-Aminosalicylic acid	4.00				1		1									
p-Aminosalicylic acid	8.00	4		4												
p-Aminosalicylic acid	10.00	3		3												

Table 1. Participant Results for Culture *S. M. tuberculosis*

DRUG	Conc.	Test Method														
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			MGIT Results			Other Tests Results		
		S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Amikacin	0.50													1		1
Amikacin	1.00	1		1										1		1
Amikacin	2.00	2		2	3		3									
Amikacin	2.50	1		1	1		1									
Amikacin	4.00	4		4												
Amikacin	5.00				1		1									
Amikacin	6.00	4		4												
Amikacin	7.50													1		1
Amikacin	8.00				1		1									
Amikacin	12.00	2		2												
Amikacin	15.00													1		1
Amikacin	30.00													1		1
Ofloxacin	0.50													1		1
Ofloxacin	1.00	4		4	2		2								1	1
Ofloxacin	1.25													1		1
Ofloxacin	2.00	7		7	5		5	1		1				1		1
Ofloxacin	2.50													1		1
Ofloxacin	4.00	3		3		1	1									
Ofloxacin	5.00													1		1
Ofloxacin	8.00				1		1									
Ciprofloxacin	0.50													1		1
Ciprofloxacin	1.00	3		3	3		3							1		1
Ciprofloxacin	1.60													1		1
Ciprofloxacin	2.00	11		11	3		3							1		1
Ciprofloxacin	3.20													1		1
Ciprofloxacin	4.00				1		1									
Ciprofloxacin	6.40													1		1
Levofloxacin	0.30	1		1												
Levofloxacin	0.60	1		1												
Levofloxacin	1.00	1		1	1		1									
Levofloxacin	2.00				3		3									
Levofloxacin	8.00				1		1									
Rifabutin	0.50	2		2												
Rifabutin	1.00	2		2	1		1									
Rifabutin	2.00	5		5												
Clofazimine	0.12				1		1									
Clofazimine	0.50				2		2							1		1
Clofazimine	1.00	1		1										1		1

Table 3. Minimum Inhibitory Concentrations for Culture T, *M. fortuitum*

DRUG	Test Method	MIC	S	R	Other	Sum
Amikacin	E-test	2.00	1			1
Amikacin	E-test	4.00	2			2
Amikacin	E-test	6.00	1			1
Amikacin	Microtiter	<0.25	1			1
Amikacin	Microtiter	<0.50	1			1
Amikacin	Microtiter	≤1.00	2			2
Amikacin	Microtiter	≤2.00	7			7
Amikacin	Microtiter	≤8.00	2			2
Augmentin	Microtiter	16.00			1	1
Azithromycin	Microtiter	>32.00		1		1
Azithromycin	Microtiter	>256.00		1		1
Cefmetazole	Microtiter	8.00	1			1
Cefoxitin	E-test	1.00	1			1
Cefoxitin	E-test	8.00	1			1
Cefoxitin	E-test	12.00	1			1
Cefoxitin	E-test	16.00	1			1
Cefoxitin	Microtiter	8.00	2			2
Cefoxitin	Microtiter	≤16.00	2			2
Cefoxitin	Microtiter	32.00		1	5	6
Cefoxitin	Microtiter	64.00			2	2
Ciprofloxacin	E-test	0.04	1			1
Ciprofloxacin	E-test	<0.12	1			1
Ciprofloxacin	E-test	0.19	1			1
Ciprofloxacin	Microtiter	<0.03	1			1
Ciprofloxacin	Microtiter	0.06	2			2
Ciprofloxacin	Microtiter	≤0.12	4			4
Ciprofloxacin	Microtiter	≤0.25	2			2
Ciprofloxacin	Microtiter	≤0.50	2			2
Ciprofloxacin	Microtiter	<1.00	1			1
Ciprofloxacin	Microtiter	>16.00		1		1
Clarithromycin	E-test	16.00		1		1
Clarithromycin	E-test	32.00		1		1
Clarithromycin	E-test	>256.00		3		3
Clarithromycin	Microtiter	>8.00		1		1
Clarithromycin	Microtiter	≥16.00		3		3
Clarithromycin	Microtiter	≥32.00		6		6
Clarithromycin	Microtiter	≥64.00		3		3
Doxycycline	E-test	>256.00		4		4
Doxycycline	Microtiter	<0.10	1			1
Doxycycline	Microtiter	>16.00		1		1
Doxycycline	Microtiter	>32.00		2		2
Doxycycline	Microtiter	>64.00		2		2
Doxycycline	Microtiter	≥128.00		3		3
Gatifloxacin	Microtiter	0.06			1	1
Gatifloxacin	Microtiter	0.12	1			1
Gatifloxacin	Microtiter	0.25			1	1
Gatifloxacin	Microtiter	<0.50	1			1
Gentamicin	Microtiter	8.00			1	1

Table 3. Minimum Inhibitory Concentrations for Culture T, *M. fortuitum*

DRUG	Test Method	MIC	S	R	Other	Sum
Imipenem	E-test	0.25	1			1
Imipenem	E-test	0.50	1			1
Imipenem	E-test	0.75	1			1
Imipenem	E-test	3.00	1			1
Imipenem	Microtiter	0.50	3			3
Imipenem	Microtiter	≤1.00	4			4
Imipenem	Microtiter	≤2.00	3			3
Imipenem	Microtiter	4.00	1			1
Levofloxacin	E-test	0.12	2			2
Levofloxacin	Microtiter	0.50	1		1	2
Levofloxacin	Microtiter	>16.00		1		1
Minocycline	Microtiter	>8.00		1		1
Minocycline	Microtiter	>16.00		1		1
Minocycline	Microtiter	32.00		2		2
Minocycline	Microtiter	64.00		1		1
Ofloxacin	Microtiter	<0.50	1			1
Rifabutin	Microtiter	>0.50		1		1
Rifabutin	Microtiter	<1.00	1			1
Rifampin	Microtiter	>4.00		1		1
Sulfamethoxazole	Microtiter	2.00	1			1
Sulfamethoxazole	Microtiter	≤4.00	2			2
Sulfamethoxazole	Microtiter	8.00	1			1
Sulfamethoxazole	Microtiter	16.00	1			1
Sulfamethoxazole	Microtiter	32.00		1		1
Sulfamethoxazole	Microtiter	≥64.00		2		2
Tetracycline	Microtiter	>64.00		1		1
Tobramycin	Microtiter	≥16.00		4		4
Tobramycin	Microtiter	>32.00		1		1
Trimethoprim-Sulfamethoxazole	E-test	0.05	1			1
Trimethoprim-Sulfamethoxazole	E-test	<0.50	1			1
Trimethoprim-Sulfamethoxazole	E-test	>32.00		1		1
Trimethoprim-Sulfamethoxazole	Microtiter	1.00	2			2
Trimethoprim-Sulfamethoxazole	Microtiter	<2.00	1			1
Trimethoprim-Sulfamethoxazole	Microtiter	32.00		1		1
Trimethoprim-Sulfamethoxazole	Other	0.25	1			1
Vancomycin	Microtiter	≥64.00		1	1	2

Table 3. Minimum Inhibitory Concentrations for Culture T, *M. fortuitum*

DRUG	Test Method	MIC	S	R	Other	Sum
Amikacin	E-test	2.00	1			1
Amikacin	E-test	4.00	2			2
Amikacin	E-test	6.00	1			1
Amikacin	Microtiter	<0.25	1			1
Amikacin	Microtiter	<0.50	1			1
Amikacin	Microtiter	≤1.00	2			2
Amikacin	Microtiter	≤2.00	7			7
Amikacin	Microtiter	≤8.00	2			2
Augmentin	Microtiter	16.00			1	1
Azithromycin	Microtiter	>32.00		1		1
Azithromycin	Microtiter	>256.00		1		1
Cefmetazole	Microtiter	8.00	1			1
Cefoxitin	E-test	1.00	1			1
Cefoxitin	E-test	8.00	1			1
Cefoxitin	E-test	12.00	1			1
Cefoxitin	E-test	16.00	1			1
Cefoxitin	Microtiter	8.00	2			2
Cefoxitin	Microtiter	≤16.00	2			2
Cefoxitin	Microtiter	32.00		1	5	6
Cefoxitin	Microtiter	64.00			2	2
Ciprofloxacin	E-test	0.04	1			1
Ciprofloxacin	E-test	<0.12	1			1
Ciprofloxacin	E-test	0.19	1			1
Ciprofloxacin	Microtiter	<0.03	1			1
Ciprofloxacin	Microtiter	0.06	2			2
Ciprofloxacin	Microtiter	≤0.12	4			4
Ciprofloxacin	Microtiter	≤0.25	2			2
Ciprofloxacin	Microtiter	≤0.50	2			2
Ciprofloxacin	Microtiter	<1.00	1			1
Ciprofloxacin	Microtiter	>16.00		1		1
Clarithromycin	E-test	16.00		1		1
Clarithromycin	E-test	32.00		1		1
Clarithromycin	E-test	>256.00		3		3
Clarithromycin	Microtiter	>8.00		1		1
Clarithromycin	Microtiter	≥16.00		3		3
Clarithromycin	Microtiter	≥32.00		6		6
Clarithromycin	Microtiter	≥64.00		3		3
Doxycycline	E-test	>256.00		4		4
Doxycycline	Microtiter	<0.10	1			1
Doxycycline	Microtiter	>16.00		1		1
Doxycycline	Microtiter	>32.00		2		2
Doxycycline	Microtiter	>64.00		2		2
Doxycycline	Microtiter	≥128.00		3		3
Gatifloxacin	Microtiter	0.06			1	1
Gatifloxacin	Microtiter	0.12	1			1
Gatifloxacin	Microtiter	0.25			1	1
Gatifloxacin	Microtiter	<0.50	1			1
Gentamicin	Microtiter	8.00			1	1

Table 3. Minimum Inhibitory Concentrations for Culture T, *M. fortuitum*

DRUG	Test Method	MIC	S	R	Other	Sum
Imipenem	E-test	0.25	1			1
Imipenem	E-test	0.50	1			1
Imipenem	E-test	0.75	1			1
Imipenem	E-test	3.00	1			1
Imipenem	Microtiter	0.50	3			3
Imipenem	Microtiter	≤1.00	4			4
Imipenem	Microtiter	≤2.00	3			3
Imipenem	Microtiter	4.00	1			1
Levofloxacin	E-test	0.12	2			2
Levofloxacin	Microtiter	0.50	1		1	2
Levofloxacin	Microtiter	>16.00		1		1
Minocycline	Microtiter	>8.00		1		1
Minocycline	Microtiter	>16.00		1		1
Minocycline	Microtiter	32.00		2		2
Minocycline	Microtiter	64.00		1		1
Ofloxacin	Microtiter	<0.50	1			1
Rifabutin	Microtiter	>0.50		1		1
Rifabutin	Microtiter	<1.00	1			1
Rifampin	Microtiter	>4.00		1		1
Sulfamethoxazole	Microtiter	2.00	1			1
Sulfamethoxazole	Microtiter	≤4.00	2			2
Sulfamethoxazole	Microtiter	8.00	1			1
Sulfamethoxazole	Microtiter	16.00	1			1
Sulfamethoxazole	Microtiter	32.00		1		1
Sulfamethoxazole	Microtiter	≥64.00		2		2
Tetracycline	Microtiter	>64.00		1		1
Tobramycin	Microtiter	≥16.00		4		4
Tobramycin	Microtiter	>32.00		1		1
Trimethoprim-Sulfamethoxazole	E-test	0.05	1			1
Trimethoprim-Sulfamethoxazole	E-test	<0.50	1			1
Trimethoprim-Sulfamethoxazole	E-test	>32.00		1		1
Trimethoprim-Sulfamethoxazole	Microtiter	1.00	2			2
Trimethoprim-Sulfamethoxazole	Microtiter	<2.00	1			1
Trimethoprim-Sulfamethoxazole	Microtiter	32.00		1		1
Trimethoprim-Sulfamethoxazole	Other	0.25	1			1
Vancomycin	Microtiter	≥64.00		1	1	2