June 19, 2001

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 January 2001 Shipment

Dear Participant:

Enclosed are analyses of laboratory test results reported to the Centers for Disease Control and Prevention (CDC) by participant laboratories for the strains of *Mycobacterium tuberculosis*--complex, *M. peregrinum* and *M. kansasii* shipped in January 2001. Participant laboratories received either three *M. tuberculosis* complex strains or all five *M. tuberculosis* and nontuberculous mycobacteria (NTM) strains. Testing results were received and analyzed from 149 of 155 (96%) of laboratories participating in this shipment. Eighteen participating laboratories are located in countries other than the United States.

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 strains in this performance evaluation are 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 NTM strains 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) tentative 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 or have questions regarding the changes in this program, you may call us at (770) 488-8133.

Sincerely yours,

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Enclosures

Analyses of the January 2001 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 three *Mycobacterium tuberculosis* complex and one strain *of M. peregrinum* and *M. kansasii* shipped in January 2001. Participant laboratories either received three *M. tuberculosis* or all five *M. tuberculosis* and NTM strains. Testing results were received and analyzed from 149 of 155 (96.1%) laboratories participating in this shipment.

Descriptive Information on Participant laboratories

Figure 1 shows the laboratory classification reported by 149 of the participants. Participants consisted of 77 health departments, 52 hospitals, 13 independents, and 7 "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 2000.

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 all of the test methods used. Some methods, such as the proportion method with Lowenstein-Jensen (L-J) media, may reflect procedures used by international participants. The three other methods listed were the E-test, micro dilution MIC, and L-J resistance ratio methods. Figure 5 provides a breakdown of the test procedures used by the participating laboratories for *M. peregrinum.* Figure 6 provides a breakdown of the test procedures used by the participating laboratories for *M. kansasii.*

M. tuberculosis test results:

The aggregate test results are provided in separate tables, representing strains K, L, M, N, and O to facilitate comparison among laboratories. Table 1 for the *M. tuberculosis* complex strains K, L and M is constructed to include the results for the radiometric (BACTEC), agar proportion, Lowenstein Jensen (L-J) proportion, and other methods at each concentration of drug. The results for 3 "other" methods are grouped together and include the E-test, L-J resistance ratio, and micro dilution MIC. 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, cycloserine, p-amino-salicylic acid) antituberculosis drugs are highlighted for the conventional and radiometric methods. Participants should note that the new NCCLS tentative standard (Susceptibility Testing of Mycobacteria, Nocardia, and Other Aerobic Actinomycetes; Tentative Standard-second Edition, NCCLS document M24-T2 [ISBN 1-56238-423-6] NCCLS, 940

West Valley Road, Suite 1400, Wayne, Pennsylvania 19087-1898, USA, 2000) 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.

Strains K and M are a duplicate isolate of *M. tuberculosis*. It is resistant to the critical concentrations of isoniazid and susceptible to other first-line drugs. There was variability among laboratories in detection of low-level isoniazid resistance in *M. tuberculosis* (K and M) with AP. Pyrazinamide resistance was detected by 17.6% (16/91) of participants for strain K and M. *M. tuberculosis* (strain L) was resistant to the critical concentration of rifampin by BACTEC and AP methods.

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:

The aggregate test results are provided in Tables 2 and 4 for strain N, *M. peregrinum*, and Tables 3 and 5 for strain O, *M. kansasii*, to facilitate comparison among laboratories. Tables 2 and 3, for *M. peregrinum* and *M. kansasii* respectively, represent either single or multiple drug concentrations with “breakpoint” susceptibility test results.

In Tables 3 and 4, the participant laboratories reported an interpretation of either susceptibility or resistance for each drug concentration that was reported. The results varied among laboratories on the drugs tested. Tables 4 and 5 represent MIC susceptibility test results, for *M. peregrinum* and *M. kansasii*, respectively, reported by participant laboratories. Tables 4 and 5 include all the quantitative MIC test results, regardless of whether the laboratory provided a test interpretation of resistant or susceptible for the reported MIC.

A total of 37 participants provided test results on strain N, *M. peregrinum* ; 28 participants reported breakpoint test results and 9 participants reported MIC test results. Table 2, representing all of the breakpoint susceptibility test results for *M. peregrinum*, includes results reported for the agar proportion, BACTEC, disk elution, microtiter, L-J proportion, and other test methods. The new NCCLS tentative standard recommends testing drugs and concentrations suggested for *M. peregrinum* which include amikacin, cefoxitin, ciprofloxacin, clarithromycin, doxycycline, imipenem, sulfamethoxazole or trimethroprim-sulfamethoxazole. The test isolate (strain N) *M. peregrinum* is susceptible to all of the recommended drugs by the various methods performed by the participant laboratories. The standard antituberculosis drugs (streptomycin, isoniazid, rifampin, ethambutol and pyrazinamide) should not be tested. A broth micro dilution method is recommended for rapid growers (7,8).

Mycobacterium peregrinum (formerly *M. fortuitum* bv: peregrinum) is responsible for sporadic infections and has been isolated from both natural and tap water (10,11,12). Strain N is *M. peregrinum* ATCC 700686, the preferred quality control strain for rapidly growing mycobacteria drug dilution susceptibility tests (7).

As shown in Figure 6, a total of 50 results were reported for strain O, *M. kansasii*, with some participants reporting more than one test method: 30 participants reported AP and 15 reported BACTEC susceptibility test results. Two (2) participants reported MIC test results by microtiter method. Table 3 of this report represents all of the breakpoint susceptibility test results for *M. kansasii*, including results for AP, BACTEC, microtiter, L-J proportion and other methods.

Of participants who tested strain O (*M. kansasii*), 92% (12/13) reported it susceptible to rifampin 2.0 µgm/ml with BACTEC, but only 33% (8/24) reported it susceptible to rifampin 1.0 µgm/ml by AP. Four (4) participants reported MIC's <4.0 µgm/ml to rifampin by various methods. For *M. kansasii* isolates resistant to 1 µgm/ml of rifampin, the recommended secondary drugs for susceptibility testing are ethambutol, isoniazid, streptomycin, clarithromycin, amikacin, ciprofloxacin, trimethoprim sulfamethoxazole or sulfamethoxazole (7).

Ninety four percent (94%) of participants found this isolate (*M. kansasii*) resistant to ethambutol 5.0 µgm/ml. The MIC for ethambutol was >8.0 µgm/ml by both BACTEC and AP methods. All 19 laboratories reported resistance to isoniazid at 0.2 µgm/ml and 73.3% (11/15) of laboratories reported susceptible at the 1.0 µgm/ml concentration of isoniazid by AP. Because of variable results with the lower (1.0 µgm/ml) concentration of INH, 5.0 µgm/ml is recommended for testing of *M. kansasii* (7). Strain O (*M. kansasii*) was susceptible to INH 5.0 µgm/ml by 100% of laboratories using BACTEC and AP methods.

Drugs for treatment of infections with *M. kansasii* include isoniazid, rifampin and ethambutol, but routine susceptibility testing is usually not performed except for rifampin. Rifabutin is used in HIV-infected patients on treatment with protease inhibitors. Most untreated strains of *M. kansasii* have a narrow MIC range. Patient cultures which remain positive after 3 months of appropriate therapy should have susceptibility tests repeated (7).

Many laboratories perform drug susceptibility testing for NTM in the absence of clinical studies demonstrating the efficacy of particular drugs and/or drug concentrations and methods (6). The addition of NTM strains to this performance evaluation program should not be interpreted as recommendations 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.

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Figure 1. Primary Classification of Participating Laboratories

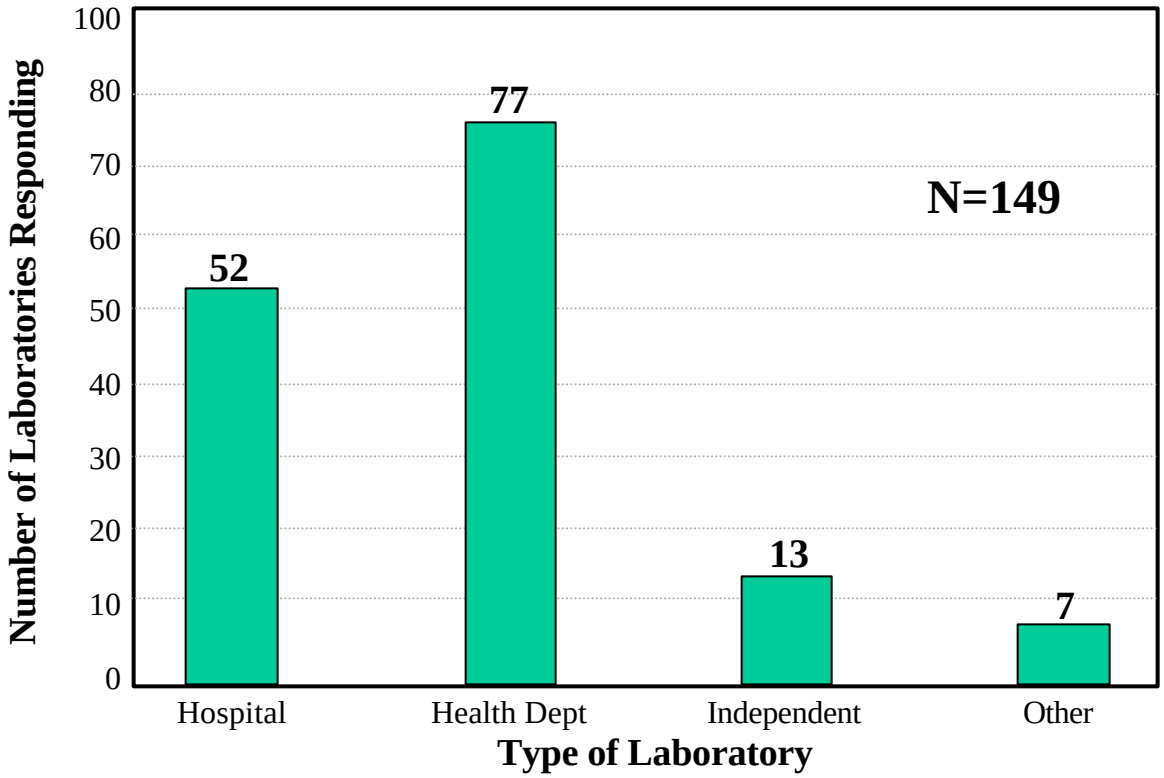
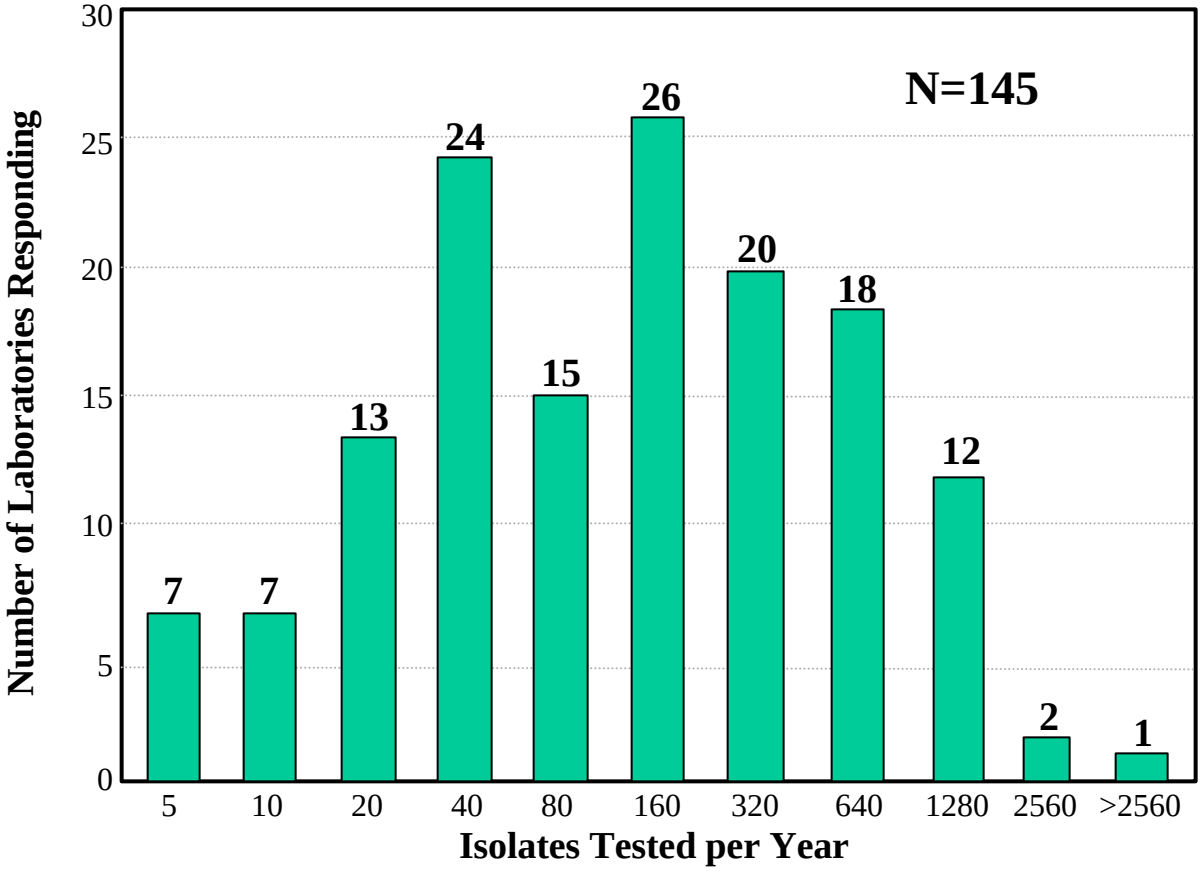
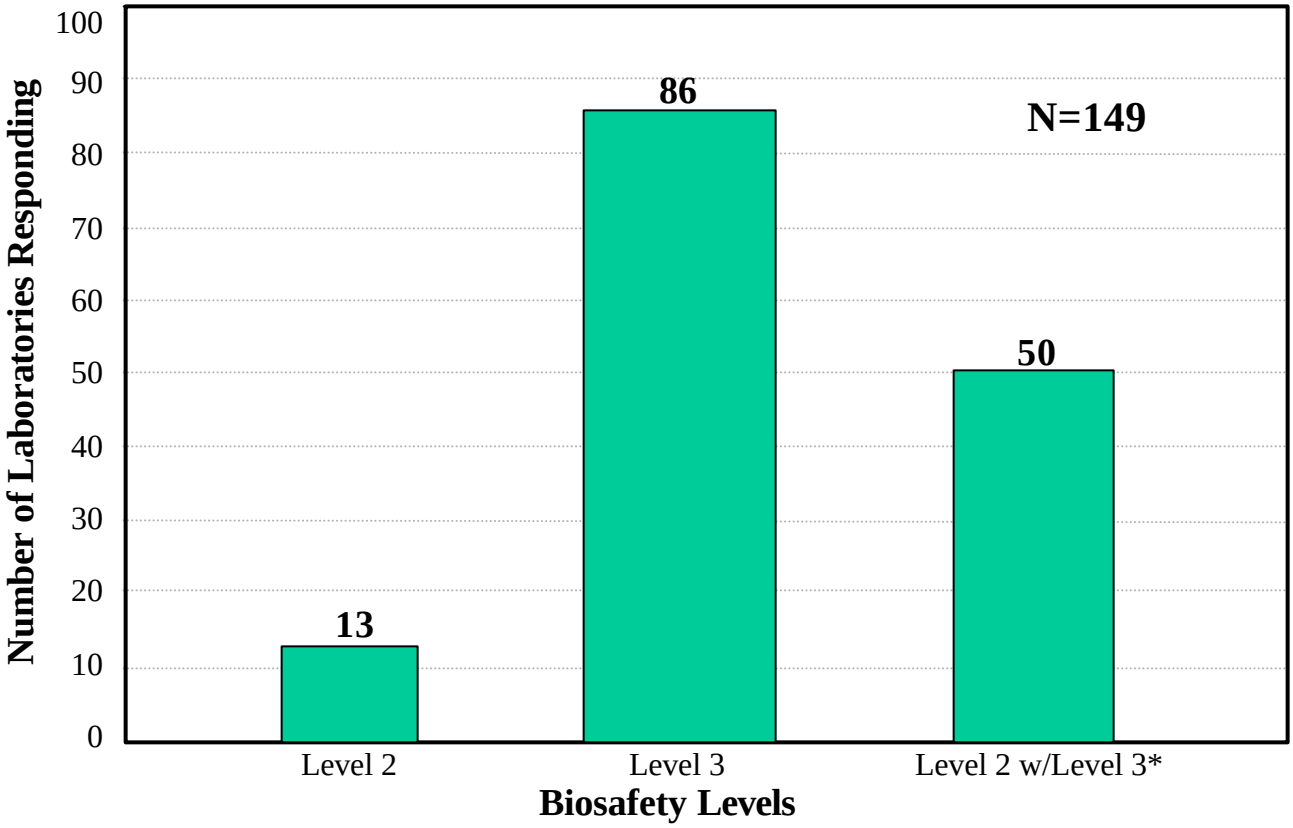


Figure 2. 2000 Annual Volume of *M. tuberculosis* Isolates for Participating Laboratories



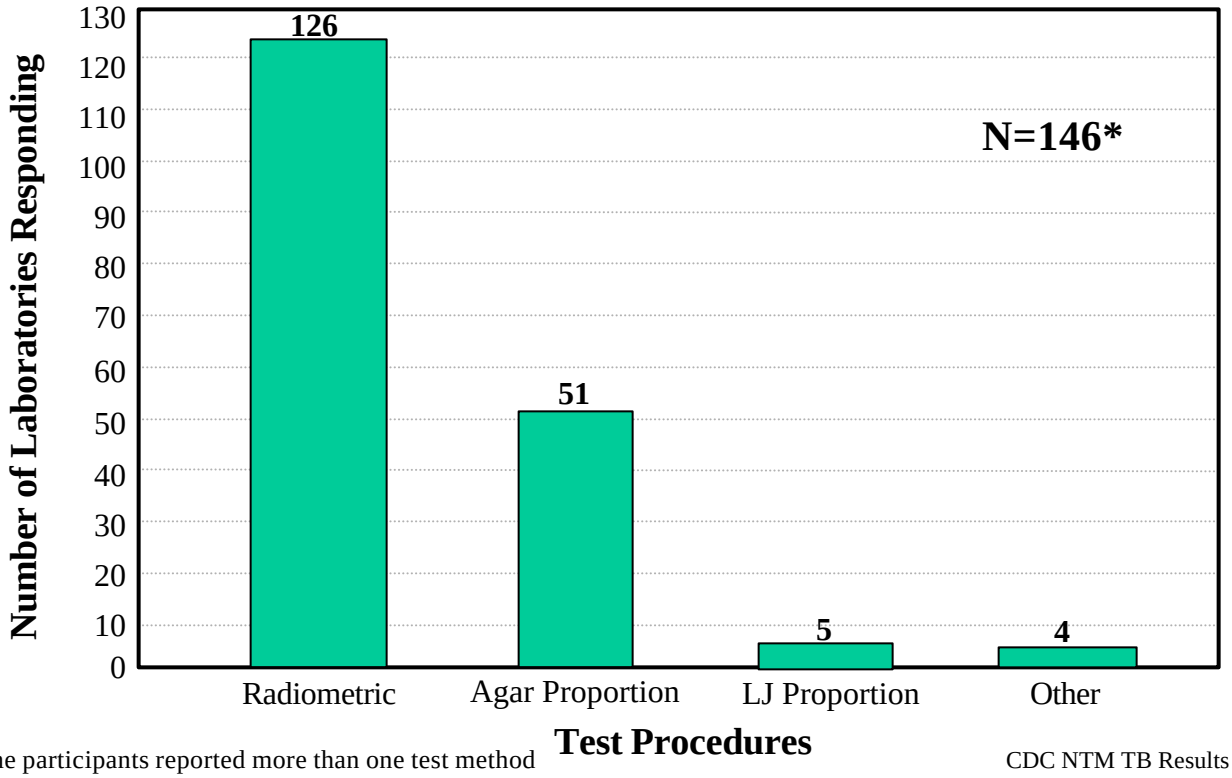
Group labels indicate upper limit of the group.

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



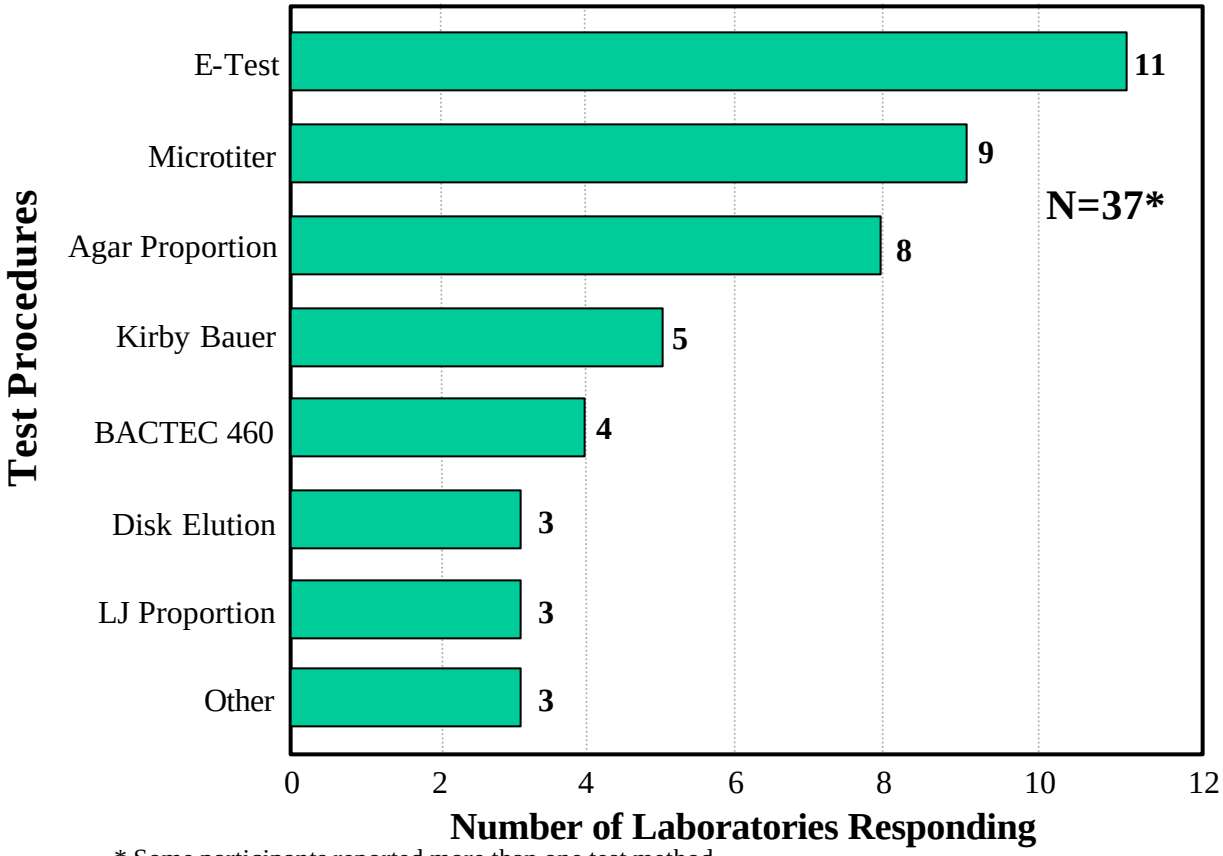
* Biosafety level 2 for facilities with level 3 containment equipment

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



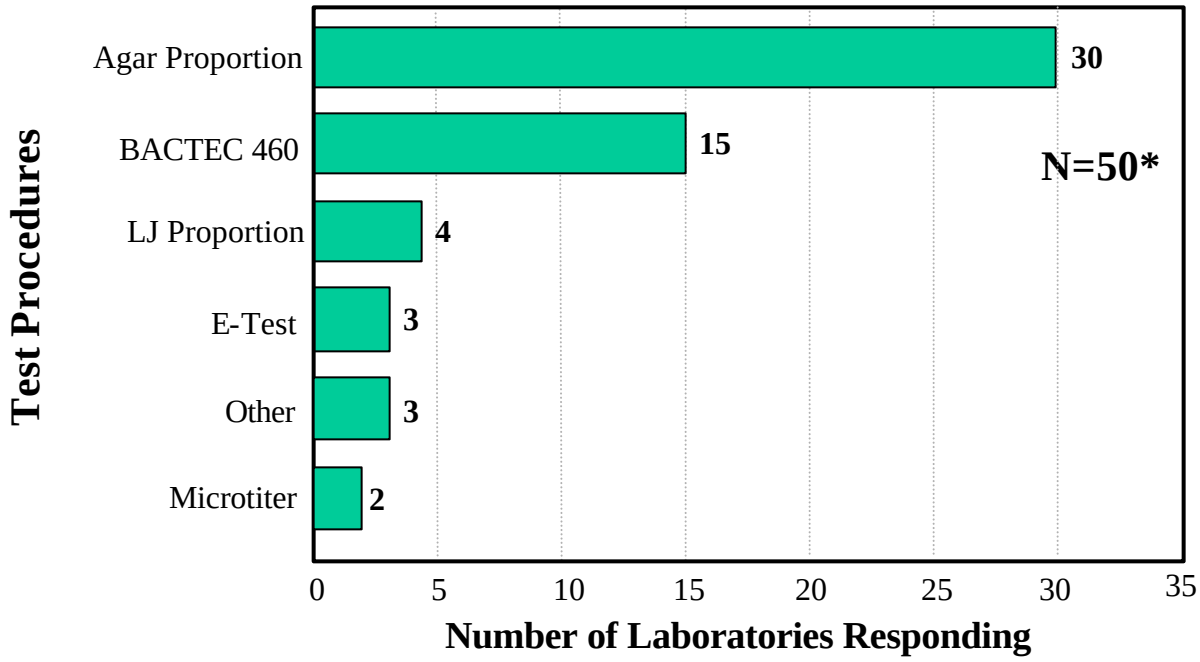
* Some participants reported more than one test method

Figure 5. Test Procedures used by Laboratories for Strain N - *M. peregrinum*



* Some participants reported more than one test method

Figure 6. Test Procedures used by Laboratories for Strain O - *M. kansasii*



* Some participants reported more than one test method

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Isoniazid	0.01					1	1						
Isoniazid	0.05											1	1
Isoniazid	0.10				1	111	112					1	1
Isoniazid	0.20	1	40	41	2	3	5	1	3	4		1	1
Isoniazid	0.25							1		1			
Isoniazid	0.40				25	2	27						
Isoniazid	0.50							1		1			
Isoniazid	1.00	40	1	41	7		7	2		2			
Isoniazid	5.00	5		5	1		1						
Isoniazid	10.00							2		2			
Isoniazid	100.00							1		1			
Rifampin	0.50				1		1						
Rifampin	1.00	43		43	7		7	1		1	1		1
Rifampin	2.00				113		113						
Rifampin	5.00	6		6				1		1			
Rifampin	14.00										1		1
Rifampin	28.00										1		1
Rifampin	40.00							4		4			
Rifampin	50.00							1		1			
Rifampin	56.00										1		1
Pyrazinamide	25.00	1		1									
Pyrazinamide	50.00					1	1						
Pyrazinamide	64.00										1		1
Pyrazinamide	100.00				72	16	88	2		2	1		1
Pyrazinamide	300.00				1		1				1		1
Pyrazinamide	400.00							1		1			
Ethambutol	1.00							1		1			
Ethambutol	1.60										1		1
Ethambutol	2.00							5		5			
Ethambutol	2.50				106		106						
Ethambutol	3.20										1		1
Ethambutol	3.75				3		3						
Ethambutol	4.00				1		1						
Ethambutol	5.00	35		35	7		7	1		1	1		1
Ethambutol	6.00	1		1									
Ethambutol	6.40										1		1
Ethambutol	7.50	6		6	13		13						
Ethambutol	8.00										1		1
Ethambutol	10.00	11		11									
Ethambutol	25.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Streptomycin	1.00							1		1			
Streptomycin	2.00	41	1	42	107		107						
Streptomycin	4.00				1		1	4		4			
Streptomycin	5.00							1		1			
Streptomycin	6.00				19		19						
Streptomycin	7.50										1		1
Streptomycin	10.00	29		29				1		1			
Streptomycin	15.00										1		1
Streptomycin	30.00										1		1
Streptomycin	50.00	1		1									
Ethionamide	1.25				1	2	3						
Ethionamide	2.50					1	1						
Ethionamide	5.00	22	5	27	3	2	5						
Ethionamide	8.00											1	1
Ethionamide	10.00	4	1	5									
Ethionamide	16.00											1	1
Ethionamide	20.00								1	1			
Ethionamide	30.00							1		1			
Ethionamide	32.00										1		1
Ethionamide	40.00							1		1			
Kanamycin	5.00	13		13	6		6						
Kanamycin	6.00	19	1	20									
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	7		7						
Capreomycin	10.00	22		22									
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	16.00							1		1			
Cycloserine	20.00							1		1			
Cycloserine	24.00										1		1
Cycloserine	25.00	2		2									
Cycloserine	30.00	15		15				2		2			
Cycloserine	40.00							1		1			
Cycloserine	48.00										1		1
Cycloserine	50.00	1		1	1		1						
Cycloserine	60.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	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	14		14									
p-Aminosalicylic acid	4.00				1		1						
p-Aminosalicylic acid	8.00	2		2									
p-Aminosalicylic acid	10.00	1		1									
Amikacin	1.00				1		1						
Amikacin	2.00	1		1	1		1						
Amikacin	2.50				1		1						
Amikacin	4.00	4	1	5	1		1						
Amikacin	5.00	1		1	1		1						
Amikacin	6.00	3		3									
Amikacin	8.00	1		1	1		1						
Amikacin	12.00	1		1									
Ofloxacin	1.00	5		5	1		1				1		1
Ofloxacin	1.25										1		1
Ofloxacin	2.00	3		3	8		8	2		2	1		1
Ofloxacin	2.50										1		1
Ofloxacin	4.00	1		1	1		1						
Ofloxacin	5.00										1		1
Ofloxacin	8.00				1		1						
Ofloxacin	14.00	1		1									
Ciprofloxacin	0.50										1		1
Ciprofloxacin	1.00	2		2	3		3				1		1
Ciprofloxacin	1.60										1		1
Ciprofloxacin	2.00	12		12	2		2						
Ciprofloxacin	3.20										1		1
Ciprofloxacin	4.00				1		1						
Ciprofloxacin	6.40										1		1
Ciprofloxacin	14.00										1		1
Levofloxacin	2.00				1		1						
Rifabutin	0.50	2		2	1		1						
Rifabutin	1.00	4		4	1		1						
Rifabutin	2.00	5		5									
Clofazimine	0.12				1		1						
Clofazimine	0.25				1		1						
Clofazimine	0.50				1		1				1		1
Clofazimine	1.00	1		1							1		1
Thiacetazone	2.00							1		1			

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Isoniazid	0.01				1		1						
Isoniazid	0.05										1		1
Isoniazid	0.10				111	2	113				1		1
Isoniazid	0.12	1		1									
Isoniazid	0.20	40		40	4		4	4		4	1		1
Isoniazid	0.25							1		1			
Isoniazid	0.40				24		24						
Isoniazid	0.50							1		1			
Isoniazid	1.00	38		38	6		6	2		2			
Isoniazid	5.00	5		5									
Isoniazid	10.00							2		2			
Isoniazid	100.00							1		1			
Rifampin	0.50					1	1						
Rifampin	1.00	1	42	43		7	7		1	1		1	1
Rifampin	2.00				1	113	114						
Rifampin	5.00		7	7		1	1		1	1			
Rifampin	10.00					1	1						
Rifampin	14.00											1	1
Rifampin	28.00											1	1
Rifampin	40.00								4	4			
Rifampin	50.00								1	1			
Rifampin	56.00											1	1
Pyrazinamide	25.00	1		1									
Pyrazinamide	50.00				1		1						
Pyrazinamide	64.00										1		1
Pyrazinamide	100.00				86	4	90	2		2	1		1
Pyrazinamide	300.00				1		1				1		1
Pyrazinamide	400.00							1		1			
Ethambutol	1.00							1		1			
Ethambutol	1.60										1		1
Ethambutol	2.00							5		5			
Ethambutol	2.50				105		105						
Ethambutol	3.20										1		1
Ethambutol	3.75				3		3						
Ethambutol	4.00				1		1						
Ethambutol	5.00	34	1	35	7		7	1		1	1		1
Ethambutol	6.00	1		1									
Ethambutol	6.40										1		1
Ethambutol	7.50	6		6	15		15						
Ethambutol	8.00										1		1
Ethambutol	10.00	11		11									
Ethambutol	25.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Streptomycin	1.00							1		1			
Streptomycin	2.00	42		42	108		108						
Streptomycin	4.00				1		1	4		4			
Streptomycin	5.00							1		1			
Streptomycin	6.00				20		20						
Streptomycin	7.50										1		1
Streptomycin	10.00	29		29				1		1			
Streptomycin	15.00										1		1
Streptomycin	30.00										1		1
Streptomycin	50.00	1		1									
Ethionamide	1.25				4		4						
Ethionamide	2.00	1		1									
Ethionamide	2.50				1		1						
Ethionamide	5.00	27		27	5		5						
Ethionamide	8.00										1		1
Ethionamide	10.00	5		5									
Ethionamide	16.00							1		1	1		1
Ethionamide	20.00							1		1			
Ethionamide	30.00							1		1			
Ethionamide	32.00										1		1
Ethionamide	40.00							1		1			
Kanamycin	2.50				1		1						
Kanamycin	5.00	13		13	7		7						
Kanamycin	6.00	19	1	20									
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				2		2						
Capreomycin	2.50				1		1						
Capreomycin	5.00	1		1	6	1	7						
Capreomycin	10.00	21	1	22									
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							1		1
Cycloserine	16.00							1		1			
Cycloserine	20.00							1		1			
Cycloserine	24.00										1		1
Cycloserine	25.00	1		1									
Cycloserine	30.00	15		15				2		2			
Cycloserine	40.00							1		1			
Cycloserine	48.00										1		1
Cycloserine	50.00	1		1	1		1						
Cycloserine	60.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	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	14		14	1		1						
p-Aminosalicylic acid	4.00				1		1						
p-Aminosalicylic acid	8.00	2		2									
p-Aminosalicylic acid	10.00	1		1									
Amikacin	1.00				1		1						
Amikacin	2.00	1		1	1		1						
Amikacin	2.50				1		1						
Amikacin	4.00	5		5	1		1						
Amikacin	5.00	1		1	1		1						
Amikacin	6.00	3		3									
Amikacin	8.00	1		1	1		1						
Amikacin	12.00	1		1									
Ofloxacin	1.00	5		5	1		1					1	1
Ofloxacin	1.25				1		1				1		1
Ofloxacin	2.00	3		3	9		9	2		2	1		1
Ofloxacin	2.50										1		1
Ofloxacin	4.00	1		1	1		1						
Ofloxacin	5.00										1		1
Ofloxacin	8.00				1		1						
Ofloxacin	14.00	1		1									
Ciprofloxacin	0.50										1		1
Ciprofloxacin	1.00	2		2	3		3				1		1
Ciprofloxacin	1.25				1		1						
Ciprofloxacin	1.60										1		1
Ciprofloxacin	2.00	12		12	2		2						
Ciprofloxacin	3.20										1		1
Ciprofloxacin	4.00				1		1						
Ciprofloxacin	6.40										1		1
Ciprofloxacin	14.00										1		1
Levofloxacin	2.00				1		1						
Rifabutin	0.25					1	1						
Rifabutin	0.50		2	2		4	4						
Rifabutin	1.00		4	4		1	1						
Rifabutin	2.00	1	5	6									
Clofazimine	0.12				1		1						
Clofazimine	0.25				1		1						
Clofazimine	0.50				1		1				1		1
Clofazimine	1.00	1		1							1		1
Thiacetazone	2.00							1		1			

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Isoniazid	0.01					1	1						
Isoniazid	0.05											1	1
Isoniazid	0.10				3	108	111					1	1
Isoniazid	0.20	2	38	40		5	5	1	3	4	1		1
Isoniazid	0.25								1	1			
Isoniazid	0.40				25	1	26						
Isoniazid	0.50							1		1			
Isoniazid	1.00	36	3	39	6	1	7	2		2			
Isoniazid	5.00	5		5	1		1						
Isoniazid	10.00							2		2			
Isoniazid	100.00							1		1			
Rifampin	0.50				1		1						
Rifampin	1.00	40	1	41	7		7	1		1	1		1
Rifampin	2.00				111	1	112						
Rifampin	5.00	6		6				1		1			
Rifampin	14.00										1		1
Rifampin	28.00										1		1
Rifampin	40.00							4		4			
Rifampin	50.00							1		1			
Rifampin	56.00										1		1
Pyrazinamide	25.00	1		1									
Pyrazinamide	50.00				1		1						
Pyrazinamide	64.00										1		1
Pyrazinamide	100.00				69	16	85	2		2	1		1
Pyrazinamide	300.00				1		1					1	1
Pyrazinamide	400.00							1		1			
Ethambutol	1.00							1		1			
Ethambutol	1.60										1		1
Ethambutol	2.00							5		5			
Ethambutol	2.50				105		105						
Ethambutol	3.20										1		1
Ethambutol	3.75				3		3						
Ethambutol	4.00				1		1						
Ethambutol	5.00	33		33	7		7	1		1	1		1
Ethambutol	6.00	1		1									
Ethambutol	6.40										1		1
Ethambutol	7.50	6		6	15		15						
Ethambutol	8.00										1		1
Ethambutol	10.00	11		11									
Ethambutol	25.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Streptomycin	1.00							1		1			
Streptomycin	2.00	40		40	106		106						
Streptomycin	4.00				1		1	4		4			
Streptomycin	5.00							1		1			
Streptomycin	6.00				20		20						
Streptomycin	7.50										1		1
Streptomycin	10.00	28		28				1		1			
Streptomycin	15.00										1		1
Streptomycin	30.00										1		1
Streptomycin	50.00	1		1									
Ethionamide	1.25				1	2	3						
Ethionamide	2.50					1	1						
Ethionamide	5.00	22	5	27	3	2	5						
Ethionamide	8.00											1	1
Ethionamide	10.00	4	1	5									
Ethionamide	16.00								1	1	1		1
Ethionamide	20.00								1	1			
Ethionamide	30.00							1		1			
Ethionamide	32.00										1		1
Ethionamide	40.00							1		1			
Kanamycin	5.00	13		13	6		6						
Kanamycin	6.00	18	1	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	7		7						
Capreomycin	10.00	22		22									
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	16.00							1		1			
Cycloserine	20.00							1		1			
Cycloserine	24.00										1		1
Cycloserine	25.00	2		2									
Cycloserine	30.00	15		15				2		2			
Cycloserine	40.00							1		1			
Cycloserine	48.00										1		1
Cycloserine	50.00	1		1	1		1						
Cycloserine	60.00	1		1									

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

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	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	14		14									
p-Aminosalicylic acid	4.00				1		1						
p-Aminosalicylic acid	8.00	2		2									
p-Aminosalicylic acid	10.00	1		1									
Amikacin	1.00				1		1						
Amikacin	2.00	1		1	1		1						
Amikacin	2.50				1		1						
Amikacin	4.00	4	1	5	1		1						
Amikacin	5.00	1		1	1		1						
Amikacin	6.00	3		3									
Amikacin	8.00	1		1	1		1						
Amikacin	12.00	1		1									
Ofloxacin	1.00	5		5	1		1					1	1
Ofloxacin	1.25										1		1
Ofloxacin	2.00	3		3	8		8	2		2	1		1
Ofloxacin	2.50										1		1
Ofloxacin	4.00	1		1	1		1						
Ofloxacin	5.00										1		1
Ofloxacin	8.00				1		1						
Ofloxacin	14.00	1		1									
Ciprofloxacin	0.50										1		1
Ciprofloxacin	1.00	2		2	3		3				1		1
Ciprofloxacin	1.60										1		1
Ciprofloxacin	2.00	11		11	2		2						
Ciprofloxacin	3.20										1		1
Ciprofloxacin	4.00				1		1						
Ciprofloxacin	6.40										1		1
Ciprofloxacin	14.00										1		1
Levofloxacin	2.00				1		1						
Rifabutin	0.50	2		2	1		1						
Rifabutin	1.00	4		4	1		1						
Rifabutin	2.00	4	1	5									
Clofazimine	0.12				1		1						
Clofazimine	0.25				1		1						
Clofazimine	0.50				1		1				1		1
Clofazimine	1.00	1		1							1		1
Thiacetazone	2.00							1		1			

Table 2. Participant Results for Culture N, *M. peregrinum*

		Test Method																					
		Agar Prop. Results			BACTEC Results			Microtiter Results			Disk Elution Results			LJ Proportion Results			Other Test Results			E-Test Results			Kirby Bauer Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Amikacin	0.12																			1		1			
Amikacin	0.30	1		1																					
Amikacin	2.00							1		1															
Amikacin	4.00							1		1															
Amikacin	6.00	1		1							2		2												
Amikacin	8.00							1		1															
Amikacin	12.00	2		2																					
Amikacin	16.00							1		1															
Amikacin	30.00	2		2							1		1				1		1	1		1	5		5
Amikacin	32.00							1		1															
Amikacin	64.00							1		1															
Amikacin	128.00							1		1															
Augmentin	30.00																							1	1
Clarithromycin	0.06								1	1															
Clarithromycin	0.12	1		1					1	1															
Clarithromycin	0.50							1		1															
Clarithromycin	1.00							1		1				1		1									
Clarithromycin	2.00							1		1							1		1						
Clarithromycin	3.00	3		3							1		1				1		1						
Clarithromycin	4.00	1		1				1		1															
Clarithromycin	6.00	1		1													1		1						
Clarithromycin	8.00							1		1															
Clarithromycin	12.00																1		1						
Clarithromycin	15.00																						1		1
Clarithromycin	16.00							1		1															
Clarithromycin	24.00																1		1						
Clarithromycin	30.00																						1		1
Clarithromycin	32.00							1		1															
Clarithromycin	64.00							1		1															
Capreomycin	10.00	1	1	2																					
Capreomycin	12.50																	1	1						
Capreomycin	16.00													1		1									
Capreomycin	25.00																1		1						
Ciprofloxacin	0.25							1		1															
Ciprofloxacin	0.50							1		1															
Ciprofloxacin	0.60	1		1																					
Ciprofloxacin	1.00	1		1				1		1															
Ciprofloxacin	2.00	3		3				1		1	2		2				1		1						
Ciprofloxacin	4.00							1		1															
Ciprofloxacin	5.00																						1		1
Ciprofloxacin	6.40																1		1						
Ciprofloxacin	8.00							1		1															
Ciprofloxacin	16.00							1		1															
Cycloserine	48.00																	1	1						
Cefoxitin	1.00																			1		1			
Cefoxitin	4.00								1	1															
Cefoxitin	8.00								1	1															
Cefoxitin	30.00	4		4							3		3				1		1	1		1	3	1	4
Cefoxitin	32.00							1		1															
Cefoxitin	64.00							1		1															
Cefoxitin	128.00							1		1															
Cefoxitin	256.00							1		1															
Cefoxitin	512.00							1		1															

Table 2. Participant Results for Culture N, *M. peregrinum*

		Test Method																					
		Agar Prop. Results			BACTEC Results			Microtiter Results			Disk Elution Results			LJ Proportion Results			Other Test Results			E-Test Results			Kirby Bauer Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Doxycycline	0.19																			1		1			
Doxycycline	0.50							1		1															
Doxycycline	1.00							1		1															
Doxycycline	2.00							1		1															
Doxycycline	2.50	1		1																					
Doxycycline	4.00							1		1															
Doxycycline	5.00	1		1																					
Doxycycline	6.00	2		2							1		1				1		1						
Doxycycline	8.00							1		1															
Doxycycline	16.00							1		1															
Doxycycline	30.00																						2		2
Doxycycline	32.00							1		1															
Doxycycline	64.00							1		1															
Doxycycline	128.00							1		1															
Ethambutol	2.00														3	3									
Ethambutol	2.50					4	4																		
Ethambutol	10.00	1		1																					
Erythromycin	3.00		1	1																					
Erythromycin	15.00																							1	1
Gentamicin	10.00																						1		1
Imipenem	0.09																			1		1			
Imipenem	1.00								1	1															
Imipenem	2.00								1	1															
Imipenem	4.00								1	1															
Imipenem	8.00	1		1							2		2				1		1						
Imipenem	10.00		1	1																1		1	2		2
Imipenem	16.00							1		1															
Imipenem	32.00							1		1															
Imipenem	64.00							1		1															
Isoniazid	0.10					4	4																		
Isoniazid	0.20		1	1											1	1									
Isoniazid	0.25														1	1									
Isoniazid	1.00		2	2											1	1									
Kanamycin	5.00	1		1																					
Kanamycin	6.00		2	2																					
Kanamycin	30.00																						1		1
Minocycline	0.25								1	1															
Minocycline	0.50								1	1															
Minocycline	1.00								1	1															
Minocycline	2.00								1	1															
Minocycline	6.00	1		1							1		1												
Minocycline	8.00							1		1															
Minocycline	16.00							1		1															
Minocycline	30.00																						3		3
Minocycline	32.00							1		1															
Minocycline	64.00							1		1															
Minocycline	128.00							1		1															
Ofloxacin	1.25																1		1						
Ofloxacin	2.00	1		1																					
Ofloxacin	4.00	1		1													1		1						
Ofloxacin	5.00																						1		1
p-Aminosalicyl	2.00		1	1																					
Pyrazinamide	100.00					1	1								1	1									
Pyrazinamide	400.00														1	1									

Table 2. Participant Results for Culture N, *M. peregrinum*

		Test Method																							
		Agar Prop. Results			BACTEC Results			Microtiter Results			Disk Elution Results			LJ Proportion Results			Other Test Results			E-Test Results			Kirby Bauer Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Rifabutin	1.00		1	1																					
Rifabutin	40.00													1		1									
Rifampin	1.00		2	2																					
Rifampin	2.00					4	4																		
Rifampin	5.00	1		1											1	1									
Rifampin	14.00																	1	1						
Rifampin	28.00																	1	1						
Rifampin	40.00														2	2									
Rifampin	50.00														1	1									
Rifampin	56.00																	1	1						
Streptomycin	2.00		2	2		4	4																		
Streptomycin	4.00														2	2									
Streptomycin	10.00	1	1	2											1	1								1	1
Sulfamethoxaz	4.00							1		1															
Sulfamethoxaz	8.00							1		1															
Sulfamethoxaz	16.00							1		1															
Sulfamethoxaz	25.00										1		1												
Sulfamethoxaz	32.00							1		1															
Sulfamethoxaz	64.00							1		1															
Sulfamethoxaz	100.00																				1	1		1	1
Sulfamethoxaz	128.00							1		1															
Sulfamethoxaz	250.00																						1		1
Tetracycline	2.00							1		1															
Tetracycline	4.00							1		1															
Tetracycline	6.00										1		1												
Tetracycline	8.00							1		1															
Tetracycline	16.00							1		1															
Tetracycline	30.00																						1		1
Tetracycline	32.00							1		1															
Tetracycline	40.00																			1		1			
Tetracycline	64.00							1		1															
Tetracycline	128.00							1		1															
Ethionamide	5.00		1	1																					
Ethionamide	8.00																	1	1						
Ethionamide	10.00		2	2																					
Ethionamide	16.00														1	1									
Ethionamide	32.00																	1	1						
Trimethoprim-S	1.25																							1	1
Trimethoprim-S	1.50										1		1												
Trimethoprim-S	5.00		1	1																					
Trimethoprim-S	10.00																						1		1
Trimethoprim-S	20.00																							1	1
Trimethoprim-S	30.00	2		2							1		1				1		1						
Trimethoprim-S	32.00																				1	1			
Tobramycin	2.00								1	1															
Tobramycin	4.00								1	1															
Tobramycin	6.00		1	1																					
Tobramycin	8.00		1	1							2		2				1		1						
Tobramycin	10.00																						1		1
Tobramycin	16.00							1		1															
Tobramycin	32.00							1		1															
Vancomycin	30.00																						1		1

Table 3. Participant Results for Culture O, *M. kansasii*

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Amikacin	0.60	1		1									
Amikacin	4.00	1	2	3									
Amikacin	5.00										1		1
Amikacin	6.00	2		2									
Amikacin	8.00		1	1									
Amikacin	10.00				1		1						
Amikacin	12.00	1		1									
Clofazimine	1.00	2		2									
Clarithromycin	1.00							1		1			
Clarithromycin	3.00	2		2									
Clarithromycin	6.00										1		1
Clarithromycin	12.00										1		1
Clarithromycin	32.00				1		1						
Capreomycin	5.00				1		1						
Capreomycin	8.00		1	1									
Capreomycin	10.00	2	6	8									
Capreomycin	25.00											1	1
Capreomycin	50.00										1		1
Ciprofloxacin	0.60	1		1									
Ciprofloxacin	1.00	1	3	4									
Ciprofloxacin	1.60											1	1
Ciprofloxacin	2.00	5	1	6	1		1				1		1
Ciprofloxacin	3.20										1		1
Ciprofloxacin	6.40										1		1
Cycloserine	12.00										1		1
Cycloserine	30.00	5	1	6									
Cycloserine	50.00				1		1						
Cycloserine	60.00		1	1									
Ethambutol	1.60											1	1
Ethambutol	2.00								4	4			
Ethambutol	2.50					7	7						
Ethambutol	3.20											1	1
Ethambutol	4.00		1	1									
Ethambutol	5.00	1	16	17		1	1					2	2
Ethambutol	6.40										1		1
Ethambutol	7.50		2	2		1	1						
Ethambutol	8.00											1	1
Ethambutol	10.00	3	5	8									
Isoniazid	0.10		1	1		7	7					1	1
Isoniazid	0.20		19	19					1	1			
Isoniazid	0.25								1	1			
Isoniazid	0.40	1		1	1	1	2					1	1
Isoniazid	1.00	11	4	15				1	1	2			
Isoniazid	2.00	1		1									
Isoniazid	4.00	1		1									
Isoniazid	5.00	4		4	1		1						

Table 3. Participant Results for Culture O, *M. kansasii*

		Test Method											
		Agar Prop. Results			BACTEC Results			LJ Prop. Results			Other Tests Results		
DRUG	Conc.	S	R	Sum	S	R	Sum	S	R	Sum	S	R	Sum
Kanamycin	5.00		3	3	1		1						
Kanamycin	6.00	5	4	9							1		1
Kanamycin	8.00		1	1									
Ofloxacin	1.00	2		2									
Ofloxacin	1.25	1		1							1		1
Ofloxacin	2.00	2		2				1		1			
Ofloxacin	2.50										1		1
Ofloxacin	4.00	1		1									
p-Aminosalicylic acid	2.00		6	6									
p-Aminosalicylic acid	8.00		2	2									
p-Aminosalicylic acid	10.00	1		1									
Pyrazinamide	100.00					2	2	1		1			
Pyrazinamide	400.00							1		1			
Rifabutin	0.10	1		1									
Rifabutin	0.50				1		1						
Rifabutin	1.00	1		1									
Rifabutin	2.00	1		1	1		1						
Rifabutin	40.00							1		1			
Rifampin	1.00	8	16	24		1	1				1	1	2
Rifampin	2.00		1	1	12	1	13						
Rifampin	5.00	6	1	7					1	1			
Rifampin	14.00											1	1
Rifampin	28.00										1		1
Rifampin	40.00							1	1	2			
Rifampin	50.00								1	1			
Streptomycin	2.00	15	6	21	7		7				1		1
Streptomycin	4.00								3	3			
Streptomycin	6.00				1		1						
Streptomycin	10.00	15		15	1		1		1	1			
Streptomycin	16.00	1		1									
Sulfamethoxazole	32.00				1		1						
Ethionamide	5.00	12		12									
Ethionamide	8.00		1	1							1		1
Ethionamide	10.00	2	1	3									

Table 4. Minimum Inhibitory Concentrations for Culture N, *M. peregrinum*

DRUG	Test Method	MIC	S	R	None	Sum
Amikacin	Agar proportion	1.00	1			1
Amikacin	E-test	0.19	1			1
Amikacin	E-test	0.25	2			2
Amikacin	E-test	0.50			1	1
Amikacin	E-test	≤0.75	4			4
Amikacin	Microtiter	≤0.50	4			4
Amikacin	Microtiter	≤1.00	4			4
Amikacin	Microtiter	<16.00	1			1
Augmentin	E-test	>256.00		1		1
Augmentin	Microtiter	32.00		1		1
Azithromycin	Microtiter	<0.50	1			1
Azithromycin	Microtiter	<1.00	1			1
Azithromycin	Microtiter	<8.00	1			1
Cefmetazole	Microtiter	<8.00	1			1
Cefoxitin	E-test	3.00	1			1
Cefoxitin	E-test	6.00	2		1	3
Cefoxitin	E-test	≤8.00	3			3
Cefoxitin	E-test	12.00	1			1
Cefoxitin	Microtiter	2.00	1			1
Cefoxitin	Microtiter	4.00	2			2
Cefoxitin	Microtiter	8.00	1			1
Cefoxitin	Microtiter	<16.00	3		1	4
Ciprofloxacin	Agar proportion	<0.50	1			1
Ciprofloxacin	E-test	0.02	1			1
Ciprofloxacin	E-test	0.03	1			1
Ciprofloxacin	E-test	0.04			1	1
Ciprofloxacin	E-test	0.06	1			1
Ciprofloxacin	E-test	<0.10	1			1
Ciprofloxacin	E-test	0.64	1			1
Ciprofloxacin	Microtiter	<0.03	1			1
Ciprofloxacin	Microtiter	≤0.06	3			3
Ciprofloxacin	Microtiter	<0.12	2			2
Ciprofloxacin	Microtiter	<0.50	1			1
Ciprofloxacin	Microtiter	<1.00	1			1
Clarithromycin	Agar proportion	0.50	1			1
Clarithromycin	E-test	0.03	2			2
Clarithromycin	E-test	0.09	2			2
Clarithromycin	E-test	<0.10	1			1
Clarithromycin	E-test	0.12			1	1
Clarithromycin	E-test	<0.16	1			1
Clarithromycin	E-test	0.25	1			1
Clarithromycin	E-test	0.94	1			1
Clarithromycin	E-test	<1.00	1			1
Clarithromycin	Microtiter	<0.03	1			1
Clarithromycin	Microtiter	≤0.13	2			2
Clarithromycin	Microtiter	<0.25	6			6
Doxycycline	E-test	0.03	1			1
Doxycycline	E-test	0.05	2			2
Doxycycline	E-test	0.64	1			1
Doxycycline	Microtiter	≤0.25	5			5
Doxycycline	Microtiter	<0.50	1			1

Table 4. Minimum Inhibitory Concentrations for Culture N, *M. peregrinum*

DRUG	Test Method	MIC	S	R	None	Sum
Erythromycin	Microtiter	8.00		1		1
Erythromycin	Microtiter	>32.00		1		1
Ethambutol	Agar proportion	4.00	1			1
Gentamicin	Microtiter	2.00	1			1
Imipenem	E-test	0.38	1			1
Imipenem	E-test	1.50	1			1
Imipenem	E-test	2.00	2			2
Imipenem	E-test	3.00	1			1
Imipenem	E-test	4.00	1			1
Imipenem	E-test	>32.00			1	1
Imipenem	Microtiter	0.25	1			1
Imipenem	Microtiter	0.50	1			1
Imipenem	Microtiter	1.00	1			1
Imipenem	Microtiter	2.00	3			3
Imipenem	Microtiter	<8.00			2	2
Kanamycin	Microtiter	4.00	1			1
Levofloxacin	Microtiter	0.50	1			1
Minocycline	E-test	0.02	1			1
Minocycline	E-test	0.04	1			1
Minocycline	E-test	<0.10	1			1
Minocycline	Microtiter	<0.12	1			1
Minocycline	Microtiter	<0.25	1			1
Minocycline	Microtiter	<4.00	1			1
Ofloxacin	Microtiter	<0.50	1			1
Ofloxacin	Microtiter	<1.00	1			1
Rifabutin	Agar proportion	2.00		1		1
Rifabutin	Microtiter	>4.00		1		1
Rifabutin	Microtiter	<8.00	1			1
Rifampin	Agar proportion	>32.00		1		1
Rifampin	Microtiter	>4.00		1		1
Sulfamethoxazole	Microtiter	<0.50	1			1
Sulfamethoxazole	Microtiter	≤2.00	3			3
Sulfamethoxazole	Microtiter	>512.00		1		1
Tetracycline	Microtiter	≤1.00	2			2
Tobramycin	E-test	1.00	1			1
Tobramycin	Microtiter	4.00	2			2
Tobramycin	Microtiter	<8.00			2	2
Trimethoprim-Sulfamethoxazole	E-test	0.01	1			1
Trimethoprim-Sulfamethoxazole	E-test	0.09	1			1
Trimethoprim-Sulfamethoxazole	E-test	<0.10	1			1
Trimethoprim-Sulfamethoxazole	E-test	0.12	1			1
Trimethoprim-Sulfamethoxazole	E-test	0.16			1	1
Trimethoprim-Sulfamethoxazole	E-test	0.19	1			1
Trimethoprim-Sulfamethoxazole	Microtiter	<0.50	1			1
Trimethoprim-Sulfamethoxazole	Microtiter	>2.00		1		1
Trimethoprim-Sulfamethoxazole	Microtiter	>4.00		1		1

Table 5. Minimum Inhibitory Concentrations for Culture O, *M. kansasii*

DRUG	Test Method	MIC	S	R	None	Sum
Amikacin	BACTEC 460	<2.00	1			1
Amikacin	Microtiter	<0.50	1			1
Amikacin	Microtiter	<1.00	1			1
Amikacin	Microtiter	8.00			1	1
Azithromycin	Microtiter	>2.00		1		1
Azithromycin	Microtiter	<4.00	1			1
Capreomycin	Agar proportion	<16.00	1			1
Ciprofloxacin	BACTEC 460	2.00	1			1
Ciprofloxacin	E-test	>32.00		1		1
Ciprofloxacin	Microtiter	<0.50	1			1
Ciprofloxacin	Microtiter	2.00			1	1
Clarithromycin	Agar proportion	32.00			1	1
Clarithromycin	BACTEC 460	<16.00	1			1
Clarithromycin	E-test	0.25	1			1
Clarithromycin	E-test	<1.00	1			1
Clarithromycin	Microtiter	<0.13	1			1
Clarithromycin	Microtiter	<0.25	1			1
Clarithromycin	Microtiter	0.50			1	1
Clofazimine	Microtiter	0.25			1	1
Ethambutol	Agar proportion	>8.00		1		1
Ethambutol	BACTEC 460	>8.00		1		1
Ethambutol	Microtiter	2.00			1	1
Ethionamide	Agar proportion	<4.00	1			1
Isoniazid	Agar proportion	<1.00	1			1
Isoniazid	Microtiter	4.00			1	1
Kanamycin	Agar proportion	>16.00		1		1
Rifabutin	BACTEC 460	<0.50	1			1
Rifabutin	Microtiter	0.25			1	1
Rifabutin	Microtiter	>4.00		1		1
Rifabutin	Microtiter	<8.00	1			1
Rifampin	Agar proportion	<4.00	1			1
Rifampin	BACTEC 460	1.00	2			2
Rifampin	Microtiter	2.00	1			1
Streptomycin	Agar proportion	<8.00	1			1
Streptomycin	BACTEC 460	<2.00	1			1
Trimethoprim-Sulfamethoxazole	E-test	>32.00		1		1