THE LANCET Respiratory Medicine

Supplementary appendix

Table S1. Demographic and clinical characteristics of the study population, N=2,043

Characteristic	Category	Total N=2,043 n (%)	Treatment outcome*			
			Success N=1,344 n (%)	Failure N=122 n (%)	Death N=246 n (%)	Loss to follow up N=331 n (%)
Study	Retrospective, 2000-2003	903 (44.2)	636 (47.3)	60 (49.2)	99 (40.2)	108 (32.6)
	Prospective, 2005-2008	1140 (55.8)	708 (52.7)	62 (50.8)	147 (59.8)	223 (67.4)
Age	<45	1397 (68.4)	901 (67)	83 (68)	174 (70.7)	239 (72.2)
	>=45	589 (28.8)	398 (29.6)	39 (32)	63 (25.6)	89 (26.9)
	Unknown	57 (2.8)	45 (3.3)	0 (0)	9 (3.7)	3 (0.9)
Gender	Male	1367 (66.9)	884 (65.8)	88 (72.1)	155 (63)	240 (72.5)
	Female	676 (33.1)	460 (34.2)	34 (27.9)	91 (37)	91 (27.5)
HIV status	Negative	1274 (62.4)	866 (64.4)	79 (64.8)	134 (54.5)	195 (58.9)
	Positive	156 (7.6)	70 (5.2)	7 (5.7)	52 (21.1)	27 (8.2)
	Unknown	613 (30)	408 (30.4)	36 (29.5)	60 (24.4)	109 (32.9)
History of previous treatment	New case	274 (13.4)	201 (15)	15 (12.3)	12 (4.9)	46 (13.9)
	Treated with FLD	1206 (59)	787 (58.6)	69 (56.6)	146 (59.3)	204 (61.6)
	Treated with SLD	487 (23.8)	299 (22.2)	36 (29.5)	78 (31.7)	74 (22.4)
	Unknown	76 (3.7)	57 (4.2)	2 (1.6)	10 (4.1)	7 (2.1)
BMI	Unknown	200 (9.8)	140 (10.4)	4 (3.3)	36 (14.6)	20 (6)
	>=18.5	1228 (60.1)	848 (63.1)	70 (57.4)	87 (35.4)	223 (67.4)
	<18.5	615 (30.1)	356 (26.5)	48 (39.3)	123 (50)	88 (26.6)
Cavitary disease	Unknown	155 (7.6)	110 (8.2)	5 (4.1)	23 (9.3)	17 (5.1)
	Yes	1280 (62.7)	814 (60.6)	93 (76.2)	158 (64.2)	215 (65)
	No	608 (29.8)	420 (31.3)	24 (19.7)	65 (26.4)	99 (29.9)
Positive baseline AFB smear	Unknown	147 (7.2)	97 (7.2)	3 (2.5)	29 (11.8)	18 (5.4)
	Yes	1517 (74.3)	963 (71.7)	96 (78.7)	185 (75.2)	273 (82.5)
	No	379 (18.6)	284 (21.1)	23 (18.9)	32 (13)	40 (12.1)
Baseline resistance to >=1 FQ	Yes	132 (6.5)	70 (5.2)	19 (15.6)	28 (11.4)	15 (4.5)
	No	1911 (93.5)	1274 (94.8)	103 (84.4)	218 (88.6)	316 (95.5)
Baseline resistance to >=1 SLI	Yes	412 (20.2)	242 (18.0)	44 (36.1)	70 (28.5)	56 (16.9)
	No	1631 (79.8)	1102 (82.0)	78 (63.9)	176 (71.5)	275 (83.1)
Time on treatment, median (IQR), months		20.4 (16.4-24.0)	21.9 (19.3-24.5)	18.3 (8.5-25.6)	12.4 (6.4-19.3)	11.8 (6.3-17.9)

FLD=first-line drugs. SLD=second-line drugs. BMI=body-mass index. FQ=fluoroquinolone. SLI=second-line injectable drug. Column percents are reported.

Treatment outcome definitions[9]:

Cured. An MDR-TB patient who has completed treatment according to program protocol and has at least five consecutive negative cultures from samples collected at least 30 days apart in the final 12 months of treatment. If only one positive culture is reported during that time, and there is no concomitant clinical evidence of deterioration, a patient may still be considered cured, provided that this positive culture is followed by a minimum of three consecutive negative cultures taken at least 30 days apart.

Treatment completed. A patient who has completed MDR-TB treatment according to program protocol but does not meet the definition for cure because of lack of bacteriological results (i.e. fewer than five cultures were performed in the final 12 months of treatment).

Treatment success. Sum of cured and treatment completed.

Death. A patient who dies for any reason during the course of MDR-TB treatment.

Failure. Treatment will be considered to have failed if two or more of the five cultures recorded in the final 12 months of therapy are positive, or if any one of the final three cultures is positive. (Treatment will also be considered to have failed if a clinical decision has been made to terminate treatment early because of poor clinical or radiological response or adverse events).

Loss to follow up. A patient whose MDR-TB treatment was interrupted for two or more consecutive months for any reason without medical approval.

Table S2. Prognostic performance of initial sputum culture conversion in predicting treatment outcome (success versus failure or death), N=1,712

Timing of initial SCC, months	Sensitivity	(95% CI)*	Specificity	(95% CI)*	PPV based on prevalence of successful outcome			
					50%	60%	70%	80%
≤2	27.3	(16.6-41.4)	89.8	(82.3-94.4)	72.8%	80.1%	86.2%	91.6%
≤6	91.8	(85.9-95.4)	57.8	(42.5-71.6)	68.5%	76.5%	83.5%	89.7%

SCC=sputum culture conversion.

*Based on the results of bivariate generalized linear mixed model unadjusted for covariates.

Table S3. Multivariable analysis of association of sputum culture conversion and covariates with treatment outcome (success versus failure or death), incorporating the duration of the continuation phase after 6-month culture conversion (A) and 2-month culture conversion (B) (N=911, PETTS study only)

A. 6-month SCC

Covariates	OR	Lower Limit of 95% CI	Upper Limit of 95% CI
SCC 6-mo	**13.09**	**7.51**	**22.83**
HIV infection			
Positive	0.71	0.34	1.51
Negative	1.00		
Unknown	0.33	0.12	0.88
Continuation phase length, months			
<12	**0.05**	**0.02**	**0.08**
>18	0.76	0.37	1.58
12-18	1.00		
Male gender	0.84	0.52	1.33
Age	1.00	0.98	1.02
History of previous treatment			
Treated with first-line drugs	0.90	0.40	1.99
Treated with second-line drugs	0.63	0.25	1.54
Unknown	1.15	0.20	6.76
New case	1.00		
Cavitary disease			
Yes	0.91	0.57	1.46
Unknown	1.25	0.24	6.56
No	1.00		
AFB smear status at start of treatment			
Positive	1.52	0.72	3.18
Unknown	0.67	0.16	2.82
Negative	1.00		
Baseline resistance to ≥1 FQ	0.23	0.10	0.54
Baseline resistance to ≥1 SLI	0.30	0.16	0.56

Note. Bold type face indicates statistically significant results at P<0.05. aOR=adjusted odds ratio. CI=confidence interval. FLD=first-line drugs. SLD=second-line drugs. FQ= fluoroquinolones. SLI=second-line injectable drug. Adjusted odds ratios are estimated using multivariable random effects logistic regression.

B. 2-month SCC

Covariates	OR	Lower Limit of 95% CI	Upper Limit of 95% CI
SCC 2-mo:			
HIV positive	0.50	0.12	2.11
HIV negative	**6.64**	**2.57**	**17.17**
HIV unknown	**3.04**	**1.43**	**6.49**
Continuation phase length, months			
<12	**0.04**	**0.02**	**0.08**

		aOR	95% CI	
	>18	0.75	0.38	1.47
	12-18	1.00		
Male gender		0.72	0.46	1.13
Age		1.00	0.99	1.02
History of previous treatment				
	Treated with first-line drugs	0.65	0.30	1.40
	Treated with second-line drugs	0.38	0.16	0.90
	Unknown	0.61	0.12	3.10
	New case	1.00		
Cavitary disease				
	Yes	0.79	0.51	1.23
	Unknown	1.23	0.26	5.85
	No	1.00		
AFB smear status at start of treatment				
	Positive	1.50	0.75	3.01
	Unknown	0.89	0.21	3.78
	Negative	1.00		
Baseline resistance to ≥1 FQ		0.21	0.09	0.46
Baseline resistance to ≥1 SLI		0.24	0.13	0.44

Note. Bold type face indicates statistically significant results at P<0.05. aOR=adjusted odds ratio. CI=confidence interval. FLD=first-line drugs. SLD=second-line drugs. FQ= fluoroquinolones. SLI=second-line injectable drug. Adjusted odds ratios are estimated using multivariable random effects logistic regression.