
Appendix

Contents

Appendix Table 1. Centre Characteristics for Each Dataset in the Individual Patient Database.....	2
Appendix Table 2. Completeness of Information and Other Quality Features of Each Dataset Included in the Meta-Analysis	4
Appendix Table 3. Patient Support and Hospitalization Protocols in Each Dataset in the Individual Patient Database.....	5
Appendix Table 4. Outcome Definitions Used for Each Dataset in the Individual Patient Database	7
Appendix Table 5. Proportion of Included Patients with Missing Data for Variables Used in Statistical Analysis	9
Appendix Table 6. Characteristics of Included vs. Excluded Participants	10
Appendix Table 7. Included Participants by Country or Region of Treatment	11
Appendix Table 8. Multivariable Estimates and Stratified Analyses Assessing Effect Modification of AFB and CXR Cavitation on Mortality	12
Appendix Table 9. Multivariable Estimates and Stratified Analyses Assessing Effect Modification of AFB and CXR Cavitation on Failure or Recurrence	13
Appendix Table 10. Characteristics of Participants Included vs. Excluded in the “Strict Complete Case Analysis”.....	14
Appendix Table 11. Characteristics of Participants Included vs. Excluded in the “Complete Case Except Drug Susceptibility Testing Analysis”	15
Appendix Table 12. Multivariable Estimates of Primary Outcomes for All Analyses	16
Appendix Table 13. Characteristics of Participants Included vs. Excluded in Culture Conversion Analysis	17
References	18

Appendix Table 1. Centre Characteristics for Each Dataset in the Individual Patient Database

No	Contact person (ref)	Study Location	Years of Treatment Initiation	Catchment area	Type of Drug Regimen	Included (I) or Excluded (E) in Present Analysis
1	Ahmad ¹	Peshawar, Pakistan	2012-2013	Hospital	Standardized and individualized	I
2	Ahuja ²	New York City, USA	2000-2006	State	Individualized	I
3	Anderson ³	UK	2004-2007	Country	Individualized	E
4	Bang ⁴	Denmark	1992-2007	Country	Individualized	I
5	Barkane ⁵	Riga, Latvia	2014	Hospital	Individualized	I
6	Barry (Korea) ^{6,7}	Seoul and Changwon, South Korea	2008-2011	Hospital	Individualized	I
7	Barry/Flood (Calif) ⁸	California, USA	2009-2015	State	Individualized	I
8	Bonnet ⁹	Abkhazia	2001-2014	Region	Individualized	I
9	Brode ¹⁰	Toronto, Canada	2010-2014	Hospital	Individualized	I
10	Brust ¹¹	KwaZulu-Natal, South Africa	2000-2003	Hospital	Standardized	E
11	Cegielski ^{12,13}	Multination (Estonia, Latvia, Philippines, Peru, Russia, South Africa, South Korea, Taiwan, Thailand)	2005-2010	Clinical centres (multi-center)	Individualized	I
12	Chan (Denver) ¹⁴	Denver, USA	1999-2015	Hospital	Individualized	E
13	Dheda ¹⁵⁻¹⁷	Cape Town, Upington and Johannesburg in South Africa	2002-2008	Clinic (multi-center)	Individualized	E
14	Fox ¹⁸	Sydney, Australia	2000-2018	Clinic (multi-center)	Individualized	I
15	Gegia ¹⁹	Georgia	2008	Country	Standardized	E
16	Guglielmetti ^{20,21}	Paris, France	2010-2013	Hospital	Individualized	I
17	Guglielmetti ²²	Paris, France	2014-2015	Hospital	Individualized	I
18	Hughes ²³	Khayelitsha, South Africa	2011-2015	Community	Individualized	E
19	Isaakidis ^{23,24}	Mumbai, India	2006-2016	Clinic	Individualized	E
20	Jarlsberg ²⁵	San Francisco, USA	2001-2015	City	Individualized	I
21	Kempker ²⁶	Tbilisi, Georgia	2009-2012	Hospital	Individualized	I
22	Koenig ²⁷	Port-au-Prince, Haiti	2008-2015	Clinic (multi-center)	Standardized and individualized	E
23	Koh ^{28,29}	Seoul, South Korea	2005-2011	Hospital	Individualized	I
24	Kuksa ³⁰	Riga, Latvia	2014	Hospital	Individualized	I
25	Kvasnovsky ^{31,32}	Eastern Cape and KwaZulu-Natal, South Africa	2006-2008	Clinic (multi-center)	Individualized	I
26	Lange ³³	Germany	2004-2006	Hospital (multi-center)	Individualized	I
27	Laniado-Laborin ³⁴	Baja California, Mexico	2006-2010	Clinic (multi-center)	Individualized	E
28	Leung ^{35,36}	Hong Kong	1996-2009	Territory	Individualized	I
29	Marks ³⁷	California, New York City, and Texas in USA	2005-2007	State (multi-center)	Individualized	I
30	Migliori ^{38,39}	Multination (Italy, Belgium, Ecuador, Belarus, Greece, Peru, Slovakia, Netherlands, UK)	2003-2015	Hospital (multi-center)	Individualized	I
31	Migliori (BDQ) ⁴⁰	Multination (Argentina, Australia, Belarus, Belgium, Greece, India, Italy, Netherlands, Peru, Portugal, Russia, South Africa, Spain, Sweden, UK)	2010-2014	Hospital (multi-center)	Individualized	I
32	Milanov ⁴¹	Gabrovo, Bulgaria	2009-2010	Hospital	Individualized	E
33	Ndjeka ⁴²	South Africa	2013-2015	Hospital	Individualized	E
34	Ndjeka ⁴³	South Africa	2013-2014	State	Individualized	E

No	Contact person (ref)	Study Location	Years of Treatment Initiation	Catchment area	Type of Drug Regimen	Included (I) or Excluded (E) in Present Analysis
35	O'Donnell ⁴⁴	KwaZulu-Natal, South Africa	2006-2010	Hospital	Individualized	E
36	Palmero ⁴⁵	Buenos Aires, Argentina	2012-2013	Hospital	Individualized	E
37	Podewils ⁴⁶	Makati, Phillipine	1999-2006	Clinic	Individualized	E
38	Riekstina/Leimane ⁴⁷	Riga, Latvia	2012-2013	Country	Individualized	I
39	Rodrigues ⁴⁸	Sao Paulo, Brazil	2014-2016	State	Standardized and individualized	I
40	Seo ⁴⁹	South Korea	2012-2016	Hospital	Individualized	I
41	Seung ⁵⁰	North Korea	2012	Sanatorium (multi-center)	Standardized	E
42	Shim ^{29,51}	Seoul, South Korea	2006-2012	Hospital	Individualized	I
43	Singla ⁵²	Delhi, India	2006-2011	Hospital	Individualized	I
44	Skrahina ⁵³	Minsk, Belarus	2015	Hospital	Standardized and individualized	I
45	Smith ⁵⁴	Arkhangelsk Oblast, Russia	2005-2010	Oblast (multi-center)	Individualized	I
46	TMC207-C208 ^{55,56}	Multination (Brazil, India, Latvia, Peru, Philippines, Russia, South Africa, Thailand)	2008-2009	Hospital (multi-center)	Individualized	I
47	TMC207-C209 ⁵⁷	Multination (China, South Korea, Philippines, Thailand, Estonia, Latvia, Russia, Turkey, Ukraine)	2009-2010	Hospital (multi-center)	Individualized	I
48	Udwadia ⁵⁸	Mumbai, India	2004-2007	Hospital	Individualized	I
49	van der Werf ⁵⁹	The Netherlands	2000-2009	Country	Individualized	E
50	Vasilyeva ⁶⁰	Russia	2016	State	Individualized	I
51	Viiklepp ⁶¹	Estonia	2008-2013	Country	Individualized	I
52	Yim/Kwak ⁶²	Seoul, South Korea	2006-2010	Hospital	Individualized	I

Appendix Table 2. Completeness of Information and Other Quality Features of Each Dataset Included in the Meta-Analysis

No	Contact person (ref)	Sampling method	Info on second-line injectable sensitivity	Info on fluoroquinolone	Participation rate	Lost to follow-up rate	Outcome definition	Info on age	Info on HIV	Info on TB treatment history	Quality
1	Ahmad ¹	Census	100.0%	100.0%	96.8%	1.7%	Laserson	100.0%	100.0%	100.0%	High
2	Ahuja ²	Random	92.4%	92.4%	100.0%	19.0%	Laserson	100.0%	80.0%	100.0%	High
3	Anderson ³	Census	100.0%	100.0%	100.0%	12.4%	Neither Laserson WHO	100.0%	100.0%	90.5%	High
4	Bang ⁴	Census	96.6%	93.1%	96.7%	17.2%	Laserson	100.0%	100.0%	100.0%	High
5	Barkane ⁵	Census	100%	100%	100%	15.6%	Laserson	100%	100%	100%	High
6	Barry (Korea) ^{6,7}	RCT	100.0%	100.0%	92.7%	10.5%	Laserson	100.0%	100.0%	100.0%	High
7	Barry/Flood (Calif) ⁸	Unclear	98.4%	95.2%	100.0%	4.8%	WHO 2013	98.4%	100.0%	100.0%	Moderate
8	Bonnet ⁹	Census	93.3%	93.3%	100.0%	41.3%	Laserson	100.0%	11.5%	98.6%	High
9	Brode ¹⁰	Census	100.0%	100.0%	100.0%	0.0%	Laserson	100.0%	100.0%	100.0%	High
10	Brust ¹¹	Census	100.0%	100.0%	100.0%	24.1%	Laserson	99.3%	57.8%	98.5%	Moderate
11	Cegielski ^{12,13}	Census	92.8%	92.2%	60.1%	19.8%	Laserson	100.0%	68.3%	98.2%	High
12	Chan (Denver) ¹⁴	Census	100.0%	100.0%	100.0%	26.7%	Laserson	100.0%	80.0%	100.0%	High
13	Dheda ¹⁵⁻¹⁷	Census	100.0%	100.0%	61.5%	4.7%	Laserson	99.1%	100.0%	93.5%	High
14	Fox ¹⁸	Census	93.1%	96.6%	100%	3.4%	WHO 2013	100%	100%	100%	High
15	Gegia ¹⁹	Census	100.0%	100.0%	100.0%	21.8%	Laserson	100.0%	72.9%	100.0%	High
16	Guglielmetti ^{20,21}	Census	100.0%	100.0%	100.0%	11.1%	WHO 2013	100.0%	100.0%	100.0%	High
17	Guglielmetti ²²	Census	100.0%	100.0%	100.0%	10%	WHO 2013	100.0%	100.0%	90.0%	High
18	Hughes ²³	Census	94.9%	94.9%	100.0%	25.4%	Laserson	100.0%	100.0%	100.0%	High
19	Isaakidis ^{23,24}	Census	96.7%	95.4%	100.0%	11.8%	Laserson	100.0%	100.0%	98.0%	High
20	Jarlsberg ²⁵	Census	96.4%	96.4%	100.0%	3.6%	Laserson	100.0%	92.9%	100.0%	High
21	Kempker ²⁶	Census	100.0%	100.0%	94.9%	32.7%	Laserson	100.0%	94.7%	100.0%	High
22	Koenig ²⁷	Census	96.3%	93.3%	100.0%	6.1%	Laserson	99.4%	100.0%	100.0%	High
23	Koh ^{28,29}	Census	100.0%	100.0%	100.0%	13.4%	WHO 2013	100.0%	100.0%	100.0%	High
24	Kuksa ³⁰	Census	100%	100%	100%	15%	Laserson	100%	100%	100%	High
25	Kvasnovsky ^{31,32}	Census	100.0%	100.0%	100.0%	11.5%	Laserson	100.0%	96.9%	100.0%	High
26	Lange ³³	Census	94.0%	96.7%	100.0%	20.1%	Laserson	100.0%	99.5%	98.4%	High
27	Laniado-Laborin ³⁴	Census	100.0%	100.0%	100.0%	13.5%	Laserson	100.0%	100.0%	100.0%	High
28	Leung ^{35,36}	Census	100.0%	100.0%	100.0%	19.9%	Laserson	100.0%	100.0%	100.0%	High
29	Marks ³⁷	Random	92.3%	91.5%	100.0%	12.3%	Neither Laserson WHO	100.0%	85.4%	100.0%	High
30	Migliori ^{38,39}	Census	96.6%	96.6%	Unclear	10.9%	WHO 2013	100.0%	98.1%	99.3%	High
31	Migliori (BDQ) ⁴⁰	Census	97.0%	100.0%	Unclear	3.7%	WHO 2013	100.0%	99.3%	100.0%	High
32	Milanov ⁴¹	Census	94.0%	94.0%	100.0%	2.0%	Laserson	100.0%	100.0%	100.0%	High
33	Ndjeka ⁴²	Unclear	78.2%	81.2%	Unclear	21.1%	Laserson	100.0%	95.5%	0.0%	Low
34	Ndjeka ⁴³	Census	100.0%	100.0%	100.0%	18.5%	Laserson WHO	100.0%	100.0%	100.0%	Low
35	O'Donnell ⁴⁴	Census	100.0%	100.0%	100.0%	13.2%	Laserson	100.0%	93.9%	93.9%	High
36	Palmero ⁴⁵	Census	100.0%	100.0%	100.0%	22.2%	WHO 2013	100.0%	100.0%	100.0%	High
37	Podewils ⁴⁶	Census	91.0%	91.2%	100.0%	15.2%	Laserson	100.0%	55.6%	100.0%	High
38	Riekstina/Leimane ⁴⁷	Census	100.0%	100.0%	100.0%	14.7%	Laserson	100.0%	94.0%	100.0%	High
39	Rodrigues ⁴⁸	Census	87.0%	85.0%	100.0%	10.0%	Laserson	100.0%	98.0%	100.0%	High
40	Seo ⁴⁹	Census	100.0%	100.0%	100.0%	16.0%	Laserson	100.0%	100.0%	100.0%	High
41	Seung ⁵⁰	Census	80.2%	80.2%	100.0%	1.4%	Unclear	100.0%	0%	88.7%	High
42	Shim ^{29,51}	Census	100.0%	100.0%	86.4%	8.2%	WHO 2013	100.0%	40%	100.0%	High
43	Singla ⁵²	Census	100.0%	100.0%	100.0%	13.8%	Laserson	100.0%	100.0%	100.0%	High
44	Skrahina ⁵³	Census	100.0%	100.0%	100.0%	1.0%	WHO 2013	100.0%	99.0%	100.0%	High
45	Smith ⁵⁴	Census	100.0%	100.0%	100.0%	21.5%	Laserson	100.0%	100.0%	98.5%	High
46	TMC207-C208 ^{55,56}	RCT	84.8%	84.8%	82.5%	28.8%	Laserson	100.0%	100.0%	100.0%	High
47	TMC207-C209 ⁵⁷	Census	76.1%	76.1%	93.1%	15.2%	Laserson	100.0%	96.5%	100.0%	Moderate
48	Udwadia ⁵⁸	Census	100.0%	100.0%	100.0%	27.8%	Laserson	100.0%	44.4%	100.0%	High
49	van der Werf ⁵⁹	Census	100.0%	98.2%	100.0%	13.4%	Laserson	100.0%	92.0%	96.4%	High
50	Vasilyeva ⁶⁰	Census	94.4%	94.4%	100%	16%	WHO 2013	100%	100%	100%	High
51	Viiklepp ⁶¹	Census	100.0%	100.0%	100.0%	11.7%	Laserson	100.0%	99.7%	100.0%	High
52	Yim/Kwak ⁶²	Census	100.0%	100.0%	100.0%	4.9%	WHO 2013	100.0%	100.0%	100.0%	High

Quality Assessment Reference: Lancet 2018; 392: 821–34.

Appendix Table 3. Patient Support and Hospitalization Protocols in Each Dataset in the Individual Patient Database

No	Contact person (ref)	Hospitalization		Directly observed therapy			
		Routine? Yes/No	Duration of Hospitalization	Yes/No	Where: CB=Community based/HF=Health facility based	Who: Family/Friend, HCW=Health Care Workers	% on directly observed therapy during ambulatory TB treatment
1	Ahmad ¹	No	All patients were treated on an ambulatory basis	Yes	HF	HCW	U
2	Ahuja ²	Yes	Aim to get people home as soon as possible	Yes	CB, HF	HCW	U
3	Anderson ³	No	If infectious and facilities for isolation not available at home, or for clinical indications.	Yes, but not all	HF	HCW	40%
4	Bang ⁴	Yes	NA	Yes	CB, HF	Family/Friend, HCW	N/A
5	Barkane ⁵	No	Till Ss conversion to negative	Yes	HF	HCW	U
6	Barry (Korea) ^{6,7}	Yes	Hospitalization is required at least 2 weeks.	Yes	U	U	about 50%
7	Barry/Flood (Calif) ⁸	No	N/A	Yes	CB, HF	HCW	>95%
8	Bonnet ⁹	Yes	The entire intensive phase	Yes	CB	HCW	>80%
9	Brode ¹⁰	Yes	Until culture conversion	Yes	CB	HCW	70%
10	Brust ¹¹	Yes	Duration of intensive phase	No			none
11	Cegielski ^{12,13}	Yes and No	In Estonia, Latvia, Russia, South Africa, and Masan, South Korea, most patients were hospitalized to initiate treatment but in the other countries very few were hospitalized.	Yes and No	CB, HF	HCW	70% full DOT, 23% partial DOT, 7% no DOT
12	Chan (Denver) ¹⁴	U	U	U	U	U	U
13	Dheda ¹⁵⁻¹⁷	Yes	All patients were admitted until culture conversion, or death.	Yes	HF	HCW	70-90 % during the intensive phase
14	Fox ¹⁸	Yes	Variable, according to sputum culture conversion. Typically at least two months.	Yes	HF	HCW	100
15	Gegia ¹⁹	Yes	Average 6 month	Yes	HF	HCW	80%
16	Guglielmetti ^{20,21}	Yes	Until culture conversion	Yes	CB, HF	HCW	selected patients only
17	Guglielmetti ²²	Yes	Until culture conversion	Yes	CB, HF	HCW	selected patients only
18	Hughes ²³	No	Only if clinically unstable and unable to attend clinic daily.	Yes	HF	HCW	First 6 months
19	Isaakidis ^{23,24}	No	N/A	Yes	CB, HF	Family/Friend, HCW	20%
20	Jarlsberg ²⁵	No	N/A	Yes	CB, HF	HCW, Smartphone based DOT	80%
21	Kempker ²⁶	Yes	Until sputum smear or culture conversion and clinical improvement.	Yes	HF	HCW	100%
22	Koenig ²⁷	Yes	3-6 months	Yes	CB, HF	HCW	86% DOT
23	Koh ^{28,29}	No	At initiation of treatment for at least 2 weeks.	Yes and No	U	U	none
24	Kuksa ³⁰	No	Till Smear conversion to negative	Yes	HF	HCW	U
25	Kvasnovsky ^{31,32}	Yes	XDR TB – until completion of intensive phase of treatment and >2 consecutive negative sputum samples.	Yes	U	U	Many patients received DOT others were seen monthly
26	Lange ³³	Yes	U	Yes	U	Highly variable	N/A
27	Laniado-Laborin ³⁴	No	N/A	Yes	CB	HCW	100%
28	Leung ^{35,36}	Yes	2-8 weeks	Yes	HF	HCW	>90%
29	Marks ³⁷	Yes	Average 2 months	Yes	U	U	Average >90%
30	Migliori ^{38,39}	Yes	60 to 90 days	Yes	CB, HF	HCW	80%+
31	Migliori (BDQ) ⁴⁰	Yes	median (IQR) 179 (92–280) days	Yes	CB, HF	HCW	U
32	Milanov ⁴¹	Yes	Average 8 months	Yes	HF	HCW	U
33	Ndjeka ⁴²	Varies	U	Varies	U	U	U
34	Ndjeka ⁴³	Varies	U	Varies	U	U	U

No	Contact person (ref)	Hospitalization		Directly observed therapy			
		Routine? Yes/No	Duration of Hospitalization	Yes/No	Where: CB= Community based/ HF=Health facility based	Who: Family/Friend, HCW=Health Care Workers	% on directly observed therapy during ambulatory TB treatment
35	O'Donnell ⁴⁴	Yes	It is routine for XDR-TB not MDR-TB. Current median inpatient time is ~2 months.	Yes	CB	Family/Friend	U
36	Palmero ⁴⁵	Yes	Initial phase for XDR (6-8 months) For MDR, ambulatory or short admission (<2 months).	Yes	HF	Only when patients are admitted	None
37	Podewils ⁴⁶	No		Yes	HF		100%
38	Riekstina/Leimane ⁴⁷	Yes	until stable smear conversion	Yes	HF	HCW	100%
39	Rodrigues ⁴⁸	No	All patients were treated on an ambulatory basis	yes	Community based	HCW	3-5X/week
40	Seo ⁴⁹	Yes	Until culture conversion; for vulnerable groups up to 6 months	Yes	CB/HF	HCW	~75%
41	Seung ⁵⁰	Yes	to begin treatment, and many throughout the full course of treatment.	Yes	U	U	U
42	Shim ^{29,51}	No	for at least 2 weeks.	Yes and No	U	U	PPM (private-public mix cooperation) nurses take care of the patients.
43	Singla ⁵²	Yes	Median 1 month	Yes	HF	HCW	none
44	Skrahina ⁵³	Yes	93-653 (fact.)	Yes	HF	HCW	100%
45	Smith ⁵⁴	Yes	159/161 were hospitalized at time of enrollment	Yes	U	U	100%
46	TMC207-C208 ^{55,56}	NA	U	Yes	HF	HCW	100%
47	TMC207-C209 ⁵⁷	NA	U	Yes	HF	HCW	100%
48	Udwadia ⁵⁸	No	no	Yes	CB	Family/Friend	80%
49	van der Werf ⁵⁹	Yes	Median: 92 days (IQR 61–154, maximum 512)	Yes	CB, HF	HCW	N/A
50	Vasilyeva ⁶⁰	U	U	U	U	U	U
51	Viiklepp ⁶¹	Yes	Usually 60 days,	Yes	HF	HCW	90-100%
52	Yim/Kwak ⁶²	Yes	U	Yes and No	U	U	none

U=unknown

Appendix Table 4. Outcome Definitions Used for Each Dataset in the Individual Patient Database

No	Contact person (ref)	Cure	Treatment Completed	Treatment Failure	Death	Lost to follow-up	Relapse / Recurrence
1	Ahmad ¹	Laserson	Laserson	Laserson	Laserson	Laserson	N/A
2	Ahuja ²	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
3	Anderson ³	Not reported	Complete a full course of therapy within 12/24 months of starting treatment	Patient found to have stopped treatment (by choice) or for any other reason not mentioned below.	Laserson	Unable to contact patient before end of treatment. Treatment outcome unknown.	Laserson
4	Bang ⁴	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
5	Barkane ⁵	Laserson	Laserson	Laserson	Laserson	Laserson	WHO
6	Barry (Korea) ^{6,7}	Laserson	Laserson	No culture conversion after 6 months of treatment	Laserson	Laserson	Laserson
7	Barry/Flood (Calif) ⁸	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Not used as an outcome.
8	Bonnet ⁹	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
9	Brode ¹⁰	Laserson	Laserson	2013 WHO	Laserson	Laserson	Laserson
10	Brust ¹¹	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
11	Cegielski ^{12,13}	Laserson	Laserson	Laserson	Laserson	Laserson	Not assessed
12	Chan (Denver) ¹⁴	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
13	Dheda ¹⁵⁻¹⁷	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
14	Fox ¹⁸	Laserson	Laserson	Laserson	Laserson	Laserson	N/A
15	Gegia ¹⁹	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
16	Guglielmetti ^{20,21}	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Laserson
17	Guglielmetti ²²	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Laserson
18	Hughes ²³	Laserson	Laserson	Sputum cultures do NOT convert to negative within 6–8 months. Two consecutive positive cultures (1 month apart) after 8 months.	Laserson	Laserson	Not assessed
19	Isaakidis ^{23,24}	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
20	Jarlsberg ²⁵	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
21	Kempker ²⁶	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
22	Koenig ²⁷	2008-2013, Laserson; 2013-2015: >3 consecutive negative results at the end of Rx	Laserson	Positive cultures after 6 months OR 2 consecutive positive cultures after culture conversion.	Laserson	Laserson	Laserson
23	Koh ^{28,29}	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Laserson
24	Kuksa	Laserson	Laserson	Laserson	Laserson	Laserson	WHO
25	Kvasnovsky ^{31,32}	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
26	Lange ³³	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
27	Laniado-Laborin ³⁴	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
28	Leung ^{35,36}	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
29	Marks ³⁷	Not reported	Laserson	If >=2 positive cultures in final months of treatment; OR, treatment stopped due to AE	Laserson	Laserson	N/A
30	Migliori ^{38,39}	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Laserson
31	Migliori (BDQ) ⁴⁰	WHO 2013	WHO 2013	WHO 2013	WHO 2013	WHO 2013	N/A
32	Milanov ⁴¹	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
33	Ndjeka ⁴²	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
34	Ndjeka ⁴³	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson

No	Contact person (ref)	Cure	Treatment Completed	Treatment Failure	Death	Lost to follow-up	Relapse / Recurrence
35	O'Donnell ⁴⁴	Laserson	Laserson	Laserson	Laserson	Laserson	N/A
36	Palmero ⁴⁵	2013 WHO criteria	2013 WHO criteria	See footnote: B	2013 WHO criteria	Laserson	Laserson
37	Podewils ⁴⁶	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
38	Riekstina/Leimane ⁴⁷	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
39	Rodrigues ⁴⁸	3 cultures negative at months 12, 15 and 18; or culture negative at month 15, 18, 21 and 24	Laserson	Laserson	Laserson	Patient did not return to healthy facility > 30 consecutive days or > 30 consecutive days with no DOTS	Laserson
40	Seo ⁴⁹	Laserson	Laserson	WHO 2013	WHO 2013	WHO 2013	WHO 2013
41	Seung ⁵⁰	U	U	U	U	U	U
42	Shim ^{29,51}	WHO 2013	WHO 2013	WHO 2013	WHO 2013	WHO 2013	WHO 2013
43	Singla ⁵²	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
44	Skrahina ⁵³	WHO 2013	WHO 2013	WHO 2013	WHO 2013	WHO 2013	WHO 2013
45	Smith ⁵⁴	Laserson	Laserson	Laserson	Laserson	Laserson	Not assessed
46	TMC207-C208 ^{55,56}	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
47	TMC207-C209 ⁵⁷	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
48	Udwadia ⁵⁸	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
49	van der Werf ⁵⁹	Negative cultures, after initial positive culture.	Laserson	Laserson	Laserson	Laserson	No relapses or recurrences in the study
50	Vasilyeva ⁶⁰	U	U	U	U	U	U
51	Viiklepp ⁶¹	Laserson	Laserson	Laserson	Laserson	Laserson	Laserson
52	Yim/Kwak ⁶²	See footnote: A	Laserson	See footnote: B	Laserson	Laserson	Laserson

Laserson outcome definitions

Cure: An MDR-TB patient who has completed treatment according to country protocol and has been consistently culture-negative (with at least five results) for 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: An MDR-TB patient who has completed treatment according to country protocol but does not meet the definition for cure or treatment failure due to lack of reported bacteriologic results (i.e., fewer than five cultures were performed in the final 12 months of therapy).

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

Lost to Follow-up: An MDR-TB patient whose MDR-TB treatment was interrupted for 2 or more consecutive months for any reason.

Treatment failure: Treatment will be considered to have failed if two or more of the five cultures recorded in the final 12 months 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 due to poor response or adverse events

Commonly used alternative outcome definitions:

For Cure: Treatment completed as planned, or as per national guidelines, AND at least 3 consecutive negative cultures (at least one month apart) after the end of the intensive phase

For Failure: Treatment terminated or permanent change of >2 anti-TB drugs because of: lack of conversion by the end of the intensive phase; OR, bacteriological reversion after conversion; OR, acquired resistance to fluoroquinolones or second-line injectables; OR, adverse events.

WHO 2013 Outcome Definitions Reference: WHO. WHO Consolidated Guidelines on Tuberculosis. Module 4, Treatment: Drug-Resistant Tuberculosis Treatment. Geneva: World Health Organization, 2020 <https://www.who.int/publications/i/item/9789240007048> (accessed July 31, 2020).

Laserson Outcome Definitions Reference: Laserson KF, Thorpe LE, Leimane V, et al. Speaking the same language: treatment outcome definitions for multidrug-resistant tuberculosis. *Int J Tuberc Lung Dis* 2005; 9: 640–5.

Appendix Table 5. Proportion of Included Patients with Missing Data for Variables Used in Statistical Analysis

Covariate	Total, n (%)	AFB Smear Negative & No Cavities on CXR	AFB Smear Negative but Cavities on CXR	AFB Smear Positive but No Cavities on CXR	AFB Smear Positive & Cavities on CXR
Total Participants Included	N = 5596	N = 774	N = 647	N = 1424	N = 2751
Bilateral Disease Missing	1406 (25.1%)	205 (26.5%)	203 (31.4%)	443 (31.1%)	555 (20.2%)
BMI Missing	1407 (25.1%)	251 (32.4%)	144 (22.3%)	382 (26.8%)	630 (22.9%)
Previous Tuberculosis Treatment Missing	38 (0.7%)	4 (0.5%)	7 (1.1%)	8 (0.6%)	19 (0.7%)
HIV Missing	108 (1.9%)	16 (2.1%)	11 (1.7%)	33 (2.3%)	48 (1.7%)
Fluoroquinolone DST Missing	280 (5%)	36 (4.7%)	39 (6%)	62 (4.4%)	143 (5.2%)
Second-Line Injectable DST Missing	270 (4.8%)	34 (4.4%)	37 (5.7%)	62 (4.4%)	137 (5%)
Ethambutol DST Missing	457 (8.2%)	96 (12.4%)	98 (15.1%)	81 (5.7%)	182 (6.6%)
Pyrazinamide DST Missing	1705 (30.5%)	172 (22.2%)	240 (37.1%)	422 (29.6%)	871 (31.7%)
Streptomycin DST Missing	735 (13.1%)	148 (19.1%)	159 (24.6%)	122 (8.6%)	306 (11.1%)
PAS DST Missing	1780 (31.8%)	314 (40.6%)	260 (40.2%)	435 (30.5%)	771 (28%)
Ethionamide/Prothionamide DST Missing	1012 (18.1%)	166 (21.4%)	186 (28.7%)	213 (15%)	447 (16.2%)

Note: age was missing for one person (who was AFB smear positive with cavities on CXR) and sex missing for another person (who was AFB smear positive with cavities on CXR).

Abbreviations: DST, drug susceptibility test; HIV, human immunodeficiency virus; BMI, body mass index; AFB, acid fast bacilli; CXR, chest x-ray; PAS, para-aminosalicylic acid

Appendix Table 6. Characteristics of Included vs. Excluded Participants

Characteristic	Included	Excluded ^o	
Number Included in Study	5596	7342	
Demographic Characteristics†			
Median (IQR) Age, Years	37 (28 to 47)	35 (27 to 43)	***
Male Sex	3580 (64%)	4294 (58.5%)	***
Body Mass Index <18.5 kg/m ²	1324 (31.6%)	674 (40.3%)	***
World Bank Income Classification of Country Where Participant Treated			
Treated in Low or Lower-Middle Income Country	1029 (18.4%)	1612 (22%)	***
Treated in Upper-Middle Income Country	2180 (39%)	5461 (74.4%)	***
Treated in High-Income Country	2387 (42.7%)	269 (3.7%)	***
Clinical Characteristics‡			
Bilateral Disease on Chest X-Ray	2884 (68.8%)	904 (71.1%)	
Previously Treated for Tuberculosis	4055 (73%)	4884 (68.4%)	***
Previously Treated for Tuberculosis with Second Line Drugs	1442 (25.9%)	728 (10.2%)	***
Living with HIV	686 (12.5%)	3287 (48.5%)	***
If Living with HIV, Receiving Antiretroviral Treatment	362 (52.8%)	2708 (82.4%)	***
Disease Characteristics‡			
Fluoroquinolone Resistant	1531 (28.8%)	1402 (19.5%)	***
Second-Line Injectable Resistant	1800 (33.8%)	1368 (19%)	***
Resistant to Both Fluoroquinolone & Second-Line Injectables	933 (17.6%)	895 (12.5%)	***
Treatment Given			
Moxifloxacin or Levofloxacin Given	3243 (58%)	5276 (71.9%)	***
Linezolid Given	998 (17.8%)	1030 (14%)	***
Bedaquiline Given	746 (13.3%)	1369 (18.6%)	***
Cycloserine or Terizidone Given	4312 (77.1%)	6320 (86.1%)	***
Clofazimine Given	394 (7%)	1165 (15.9%)	***
Amikacin Given	1241 (22.2%)	572 (7.8%)	***
Kanamycin or Capreomycin Given	3552 (63.5%)	5772 (78.6%)	***
Ethionamide or Prothionamide Given	4425 (79.1%)	6220 (84.7%)	***
Pyrazinamide Given	4058 (72.5%)	6761 (92.1%)	***
Carbapenems Given	241 (4.3%)	12 (0.2%)	***
Received ≥4 Effective Drugs	4113 (73.5%)	5785 (78.8%)	***
Year of Treatment Initiation			
1993-2003	206 (3.7%)	1491 (20.3%)	***
2004-2008	3105 (55.5%)	1276 (17.4%)	***
2009-2012	1574 (28.1%)	647 (8.8%)	***
2013-2016	711 (12.7%)	3928 (53.5%)	***

^op < 0.05; ^{**}p < 0.01; ^{***}p < 0.001 across groups according to Kruskal-Wallis test for age, and according to Chi-Square test for all others

†Percentages reflective of those where the information is known

^osee Appendix Figure 1, for detailed reasons for exclusion

Abbreviations: IQR, interquartile range; HIV, human immunodeficiency virus

Appendix Table 7. Included Participants by Country or Region of Treatment

Country	Total, n (%)	AFB Smear Negative & No Cavities on CXR	AFB Smear Negative but Cavities on CXR	AFB Smear Positive but No Cavities on CXR	AFB Smear Positive & Cavities on CXR
Total Participants Included	N = 5596	N = 774	N = 647	N = 1424	N = 2751
South Africa	990 (17.7%)	106 (13.7%)	117 (18.1%)	224 (15.7%)	543 (19.7%)
South Korea	696 (12.4%)	147 (19%)	100 (15.5%)	154 (10.8%)	295 (10.7%)
Russia	530 (9.5%)	39 (5%)	110 (17%)	30 (2.1%)	351 (12.8%)
Philippines	445 (8%)	10 (1.3%)	9 (1.4%)	210 (14.7%)	216 (7.9%)
Latvia	374 (6.7%)	100 (12.9%)	70 (10.8%)	22 (1.5%)	182 (6.6%)
Estonia	350 (6.3%)	85 (11%)	51 (7.9%)	47 (3.3%)	167 (6.1%)
Georgia	336 (6%)	13 (1.7%)	9 (1.4%)	190 (13.3%)	124 (4.5%)
USA	255 (4.6%)	58 (7.5%)	15 (2.3%)	101 (7.1%)	81 (2.9%)
Peru	253 (4.5%)	18 (2.3%)	25 (3.9%)	98 (6.9%)	112 (4.1%)
Hong Kong	198 (3.5%)	41 (5.3%)	9 (1.4%)	51 (3.6%)	97 (3.5%)
Pakistan	180 (3.2%)	14 (1.8%)	3 (0.5%)	100 (7%)	63 (2.3%)
Germany	144 (2.6%)	28 (3.6%)	26 (4%)	33 (2.3%)	57 (2.1%)
Italy	107 (1.9%)	8 (1%)	5 (0.8%)	23 (1.6%)	71 (2.6%)
Belarus	106 (1.9%)	22 (2.8%)	39 (6%)	8 (0.6%)	37 (1.3%)
Brazil	104 (1.9%)	4 (0.5%)	5 (0.8%)	18 (1.3%)	77 (2.8%)
Asia†	83 (1.5%)	13 (1.7%)	9 (1.4%)	19 (1.3%)	42 (1.5%)
India	68 (1.2%)	0 (0%)	2 (0.3%)	15 (1.1%)	51 (1.9%)
Thailand	56 (1%)	2 (0.3%)	4 (0.6%)	16 (1.1%)	34 (1.2%)
Other*	321 (5.7%)	66 (8.5%)	39 (6.0%)	65 (4.6%)	151 (5.5%)

Abbreviations: HIV, human immunodeficiency virus; BMI, body mass index

*France, Europe, Taiwan, Netherlands, Australia, Canada, Belgium, Denmark, Greece, Ecuador, United Kingdom, Slovakia, Sweden, Argentina, Portugal

†Studies were conducted across multiple sites in this region, but exact country is unknown.

Appendix Table 8. Multivariable Estimates and Stratified Analyses Assessing Effect Modification of AFB and CXR Cavitation on Mortality

Characteristic	AFB Smear Negative & Cavities on CXR Adjusted Odds Ratio (95% CI) Reference: Smear Negative & No Cavities on CXR	AFB Smear Positive & No Cavities on CXR Adjusted Odds Ratio (95% CI) Reference: Smear Negative & No Cavities on CXR	AFB Smear Positive & Cavities on CXR Adjusted Odds Ratio (95% CI) Reference: Smear Negative & No Cavities on CXR	p for interaction
Age				
<37 years	1.1 (0.6 to 2.1)	1.3 (0.8 to 2.4)	1.8 (1.1 to 3.0)	0.304
≥37 years	1.1 (0.7 to 1.8)	1.0 (0.7 to 1.6)	1.2 (0.8 to 1.8)	
Sex				
Female	1.0 (0.5 to 2.1)	1.2 (0.7 to 2.1)	1.7 (0.97 to 3.0)	0.526
Male	1.1 (0.7 to 1.8)	1.2 (0.7 to 1.8)	1.3 (0.9 to 2.0)	
Body Mass Index				
<18.5 kg/m ²	0.8 (0.4 to 1.6)	1.0 (0.5 to 2.0)	1.4 (0.8 to 2.5)	0.564
≥18.5 kg/m ²	1.3 (0.8 to 2.1)	1.3 (0.8 to 2.1)	1.5 (0.99 to 2.4)	
Country Level Income				
High Income	1.4 (0.7 to 3.0)	1.0 (0.5 to 1.9)	1.6 (0.9 to 2.8)	0.945
Upper Middle Income	1.0 (0.6 to 1.7)	1.3 (0.8 to 2.1)	1.5 (0.9 to 2.3)	
Low and Low-Middle Income	1.4 (0.2 to 7.6)	1.0 (0.3 to 3.1)	1.4 (0.4 to 4.3)	
Bilateral Disease on CXR				
Unilateral Disease on CXR	0.6 (0.2 to 1.6)	0.9 (0.4 to 1.9)	1.0 (0.5 to 2.0)	0.725
Bilateral Disease on CXR	1.1 (0.6 to 1.9)	1.2 (0.7 to 2.0)	1.3 (0.8 to 2.1)	
Previous Treatment with First- or Second-Line Drugs				
Does Not Have Previous Treatment	2.2 (1.02 to 4.7)	1.4 (0.7 to 3.0)	1.8 (0.9 to 3.4)	0.422
Has Previous Treatment	0.9 (0.6 to 1.4)	1.1 (0.7 to 1.6)	1.4 (0.9 to 2.0)	
HIV Status				
HIV Negative	1.3 (0.8 to 2.1)	1.3 (0.8 to 2.1)	1.8 (1.2 to 2.8)	0.109
HIV Positive	0.8 (0.4 to 1.6)	0.8 (0.5 to 1.5)	1.0 (0.5 to 1.7)	
Resistance Patterns				
Susceptible to FQ and SLI	1.0 (0.5 to 2.2)	1.3 (0.7 to 2.3)	1.5 (0.9 to 2.7)	0.221
Resistant to FQ, Susceptible to SLI	9.0 (1.1 to 76.7)	3.1 (0.4 to 24.7)	5.7 (0.7 to 43.9)	
Resistant to SLI, Susceptible to FQ	1.0 (0.4 to 2.5)	0.6 (0.2 to 1.6)	1.1 (0.5 to 2.5)	
Resistant to FQ and SLI	1.1 (0.6 to 2.1)	1.5 (0.8 to 2.9)	1.6 (0.9 to 2.9)	
Received Bedaquiline and/or Linezolid				
No Bedaquiline or Linezolid	1.0 (0.6 to 1.5)	1.1 (0.8 to 1.6)	1.2 (0.9 to 1.7)	0.012
Received Bedaquiline and/or Linezolid	4.0 (0.8 to 20.1)	2.1 (0.4 to 10.0)	7.0 (1.7 to 29.3)	
Number of Effective Drugs				
Received <4 Effective Drugs	1.2 (0.6 to 2.2)	1.6 (0.9 to 3.0)	1.4 (0.8 to 2.4)	0.267
Received ≥4 Effective Drugs	1.1 (0.6 to 1.9)	1.0 (0.6 to 1.6)	1.5 (0.97 to 2.4)	
Year of Treatment Initiation				
1993-2003	19.2 (1.01 to 369.7)	1.4 (0.1 to 16.3)	0.6 (0.0 to 9.4)	0.015
2004-2008	0.9 (0.5 to 1.4)	1.2 (0.8 to 1.9)	1.2 (0.8 to 1.7)	
2009-2012	1.8 (0.6 to 5.6)	1.2 (0.5 to 2.9)	3.4 (1.5 to 7.7)	
2013-2016	1.5 (0.4 to 5.8)	0.7 (0.1 to 3.8)	2.1 (0.6 to 7.0)	

†Models are adjusted in the following way, except in cases where the variable is under stratification, in which case it is excluded. Multivariable models adjusted for country level income, resistance to fluoroquinolones, resistance to second-line injectables, number of effective group A drugs received, number of other effective drugs received, HIV-infection and antiretroviral therapy use, age, sex, year of treatment initiation, bilateral disease, previous treatment, and underweight body mass index (<18.5 kg/m²). All models account for clustering at the study-level.

Abbreviations: 95% CI, 95% confidence interval; FQ, fluoroquinolone; SLI, second-line injectable; HIV, human immunodeficiency virus; ART, antiretroviral therapy; AFB, acid fast bacilli; CXR, chest x-ray

Note: P-values for interaction come from a likelihood ratio test of models with vs. without interaction terms for the variable under study. A p-value <0.05 was considered statistically significant.

Appendix Table 9. Multivariable Estimates and Stratified Analyses Assessing Effect Modification of AFB and CXR Cavitation on Failure or Recurrence

Characteristic	AFB Smear Negative & Cavities on CXR Adjusted Odds Ratio (95% CI)† Reference: Smear Negative & No Cavities on CXR	AFB Smear Positive & No Cavities on CXR Adjusted Odds Ratio (95% CI)† Reference: Smear Negative & No Cavities on CXR	AFB Smear Positive & Cavities on CXR Adjusted Odds Ratio (95% CI)† Reference: Smear Negative & No Cavities on CXR	p for interaction
Age				
<37 years	1.0 (0.5 to 2.3)	1.6 (0.8 to 3.2)	2.7 (1.4 to 5.2)	0.439
≥37 years	1.0 (0.5 to 1.9)	1.2 (0.7 to 2.2)	1.8 (1.1 to 3.0)	
Sex				
Female	1.1 (0.6 to 2.1)	1.3 (0.7 to 2.2)	2.0 (1.2 to 3.2)	0.937
Male	1.1 (0.6 to 2.2)	1.6 (0.9 to 2.9)	2.5 (1.4 to 4.4)	
Body Mass Index				
<18.5 kg/m ²	1.4 (0.5 to 4.0)	1.4 (0.5 to 3.6)	2.2 (0.9 to 5.0)	0.819
≥18.5 kg/m ²	0.9 (0.5 to 1.7)	1.4 (0.8 to 2.4)	2.2 (1.4 to 3.6)	
Country Level Income				
High Income	0.8 (0.4 to 1.4)	1.8 (1.1 to 2.9)	1.9 (1.3 to 2.9)	0.101
Upper Middle Income	1.3 (0.6 to 2.5)	1.1 (0.5 to 2.2)	2.7 (1.4 to 4.9)	
Low and Low-Middle Income	--*	--*	--*	
Bilateral Disease on CXR				
Unilateral Disease on CXR	0.8 (0.2 to 2.7)	2.0 (0.9 to 4.3)	1.9 (0.9 to 3.9)	0.369
Bilateral Disease on CXR	1.3 (0.5 to 3.1)	1.7 (0.8 to 3.9)	2.8 (1.4 to 5.9)	
Previous Treatment with First- or Second-Line Drugs				
Does Not Have Previous Treatment	0.5 (0.1 to 1.7)	1.2 (0.5 to 2.8)	2.4 (1.1 to 4.9)	0.592
Has Previous Treatment	1.2 (0.7 to 2.1)	1.4 (0.9 to 2.4)	2.2 (1.4 to 3.5)	
HIV Status				
HIV Negative	0.9 (0.5 to 1.5)	1.2 (0.7 to 1.9)	2.0 (1.3 to 3.1)	0.014
HIV Positive	2.4 (0.5 to 11.1)	4.7 (1.3 to 17.2)	5.3 (1.4 to 19.3)	
Resistance Patterns				
Susceptible to FQ and SLI	0.6 (0.3 to 1.5)	0.9 (0.5 to 1.8)	1.2 (0.6 to 2.2)	0.155
Resistant to FQ, Susceptible to SLI	0.8 (0.2 to 2.5)	1.7 (0.7 to 4.2)	2.7 (1.1 to 6.5)	
Resistant to SLI, Susceptible to FQ	1.3 (0.2 to 7.6)	3.1 (0.6 to 15.7)	6.3 (1.4 to 27.7)	
Resistant to FQ and SLI	1.9 (0.8 to 4.6)	1.5 (0.6 to 3.7)	3.8 (1.8 to 8.1)	
Received Bedaquiline and/or Linezolid				
No Bedaquiline or Linezolid	1.1 (0.6 to 1.9)	1.7 (1.01 to 2.8)	2.5 (1.6 to 4.0)	0.812
Received Bedaquiline and/or Linezolid	0.7 (0.3 to 1.8)	0.9 (0.4 to 2.0)	1.7 (0.8 to 3.3)	
Number of Effective Drugs				
Received <4 Effective Drugs	1.9 (0.8 to 4.6)	2.3 (0.96 to 5.3)	3.7 (1.7 to 7.8)	0.375
Received ≥4 Effective Drugs	0.6 (0.3 to 1.3)	1.0 (0.6 to 1.8)	1.6 (0.96 to 2.6)	
Year of Treatment Initiation				
1993-2003	10.3 (0.3 to 339.4)	0.8 (0.1 to 8.3)	1.8 (0.2 to 17.4)	0.750
2004-2008	1.1 (0.6 to 2.0)	1.4 (0.8 to 2.6)	2.1 (1.2 to 3.7)	
2009-2012	1.2 (0.4 to 3.4)	1.5 (0.7 to 3.4)	2.9 (1.4 to 6.0)	
2013-2016	0.4 (0.1 to 1.8)	2.1 (0.5 to 9.6)	1.3 (0.4 to 4.4)	

†Models are adjusted in the following way, except in cases where the variable is under stratification, in which case it is excluded. Multivariable models adjusted for country level income, resistance to fluoroquinolones, resistance to second-line injectables, number of effective group A drugs received, number of other effective drugs received, HIV-infection and antiretroviral therapy use, age, sex, year of treatment initiation, bilateral disease, previous treatment, and underweight body mass index (<18.5 kg/m²). All models account for clustering at the study-level.

*<50 participants in one or more categories with 1 or fewer events, stratified models did not converge.

Abbreviations: 95% CI, 95% confidence interval; FQ, fluoroquinolone; SLI, second-line injectable; HIV, human immunodeficiency virus; ART, antiretroviral therapy; AFB, acid fast bacilli; CXR, chest x-ray

Note: P-values for interaction come from a likelihood ratio test of models with vs. without interaction terms for the variable under study. A p-value <0.05 was considered statistically significant.

Appendix Table 10. Characteristics of Participants Included vs. Excluded in the “Strict Complete Case Analysis”

Characteristic	Included	Excluded	
Number of Participants	1806	3790	
Indicators of Extent of Disease			
AFB Smear Negative & No Cavities on CXR	246 (13.6%)	528 (13.9%)	
AFB Smear Negative & Cavities on CXR	172 (9.5%)	475 (12.5%)	**
AFB Smear Positive & No Cavities on CXR	464 (25.7%)	960 (25.3%)	
AFB Smear Positive & Cavities on CXR	924 (51.2%)	1827 (48.2%)	*
Demographic Characteristics†			
Median (IQR) Age, Years	37 (28 to 48)	37 (28 to 47)	
Male Sex	1177 (65.2%)	2403 (63.4%)	
Body Mass Index <18.5 kg/m ²	556 (30.8%)	768 (32.2%)	
World Bank Income Classification of Country Where Participant Treated			
Treated in Low or Lower-Middle Income Country	502 (27.8%)	527 (13.9%)	***
Treated in Upper-Middle Income Country	334 (18.5%)	1846 (48.7%)	***
Treated in High-Income Country	970 (53.7%)	1417 (37.4%)	***
Clinical Characteristics†			
Bilateral Disease on Chest X-Ray	1256 (69.5%)	1628 (68.3%)	
Previously Treated for Tuberculosis	1359 (75.2%)	2696 (71.9%)	**
Previously Treated for Tuberculosis with Second Line Drugs	456 (25.2%)	986 (26.3%)	***
Living with HIV	100 (5.5%)	586 (15.9%)	***
If Living with HIV, Receiving Antiretroviral Treatment	45 (45%)	317 (54.1%)	
Disease Characteristics†			
Fluoroquinolone Resistant	387 (21.4%)	1144 (32.6%)	***
Second-Line Injectable Resistant	485 (26.9%)	1315 (37.4%)	***
Resistant to Both Fluoroquinolone & Second-Line Injectables	198 (11%)	735 (21%)	***
Treatment Given			
Moxifloxacin or Levofloxacin Given	1079 (59.7%)	2164 (57.1%)	***
Linezolid Given	239 (13.2%)	759 (20%)	***
Bedaquiline Given	165 (9.1%)	581 (15.3%)	***
Cycloserine or Terizidone Given	1609 (89.1%)	2703 (71.3%)	***
Clofazimine Given	62 (3.4%)	332 (8.8%)	***
Amikacin Given	160 (8.9%)	1081 (28.5%)	***
Kanamycin or Capreomycin Given	1310 (72.5%)	2242 (59.2%)	***
Ethionamide or Prothionamide Given	1548 (85.7%)	2877 (75.9%)	***
Pyrazinamide Given	1160 (64.2%)	2898 (76.5%)	***
Carbapenems Given	26 (1.4%)	215 (5.7%)	***
Received ≥4 Effective Drugs	1424 (78.8%)	2689 (70.9%)	***
Year of Treatment Initiation			
1993-2003	0 (0%)	206 (5.4%)	***
2004-2008	1182 (65.4%)	1923 (50.7%)	**
2009-2012	465 (25.7%)	1109 (29.3%)	***
2013-2016	159 (8.8%)	552 (14.6%)	***
Outcomes			
Treatment Success	1173 (65.0%)	2339 (61.7%)	*
Failure or Recurrence	133 (7.4%)	301 (7.9%)	
Death	143 (7.9%)	577 (15.2%)	***
Lost to Follow-up	357 (19.8%)	573 (15.1%)	***

*p < 0.05; **p < 0.01; ***p < 0.001 across groups according to Kruskal-Wallis test for age, and according to Chi-Square test for all others

†Percentages reflective of those where the information is known

Abbreviations: IQR, interquartile range; HIV, human immunodeficiency virus

Appendix Table 11. Characteristics of Participants Included vs. Excluded in the “Complete Case Except Drug Susceptibility Testing Analysis”

Characteristic	Included	Excluded	
Number of Participants	3343	2253	
Indicators of Extent of Disease			
AFB Smear Negative & No Cavities on CXR	412 (12.3%)	362 (16.1%)	***
AFB Smear Negative & Cavities on CXR	366 (10.9%)	281 (12.5%)	
AFB Smear Positive & No Cavities on CXR	782 (23.4%)	642 (28.5%)	***
AFB Smear Positive & Cavities on CXR	1783 (53.3%)	988 (43.9%)	***
Demographic Characteristics†			
Median (IQR) Age, Years	37 (29 to 47)	36 (27 to 48)	*
Male Sex	2186 (65.4%)	1394 (61.9%)	**
Body Mass Index <18.5 kg/m ²	1094 (32.7%)	230 (27.2%)	**
World Bank Income Classification of Country Where Participant Treated			
Treated in Low or Lower-Middle Income Country	672 (20.1%)	357 (15.8%)	***
Treated in Upper-Middle Income Country	1383 (41.4%)	797 (35.4%)	***
Treated in High-Income Country	1288 (38.5%)	1099 (48.8%)	***
Clinical Characteristics†			
Bilateral Disease on Chest X-Ray	2381 (71.2%)	503 (59.4%)	***
Previously Treated for Tuberculosis	2549 (76.2%)	1506 (68%)	***
Previously Treated for Tuberculosis with Second Line Drugs	759 (22.7%)	683 (30.8%)	***
Living with HIV	482 (14.4%)	204 (9.5%)	***
If Living with HIV, Receiving Antiretroviral Treatment	241 (50%)	121 (59.3%)	***
Disease Characteristics†			
Fluoroquinolone Resistant	687 (21.7%)	844 (39.3%)	***
Second-Line Injectable Resistant	982 (30.9%)	818 (38.1%)	***
Resistant to Both Fluoroquinolone & Second-Line Injectables	400 (12.6%)	533 (24.9%)	***
Treatment Given			
Moxifloxacin or Levofloxacin Given	1561 (46.7%)	1682 (74.7%)	***
Linezolid Given	380 (11.4%)	618 (27.4%)	***
Bedaquiline Given	250 (7.5%)	496 (22%)	***
Cycloserine or Terizidone Given	2737 (81.9%)	1575 (69.9%)	***
Clofazimine Given	114 (3.4%)	280 (12.4%)	***
Amikacin Given	654 (19.6%)	587 (26.1%)	***
Kanamycin or Capreomycin Given	2299 (68.8%)	1253 (55.6%)	***
Ethionamide or Prothionamide Given	2865 (85.7%)	1560 (69.2%)	***
Pyrazinamide Given	2488 (74.4%)	1570 (69.7%)	***
Carbapenems Given	60 (1.8%)	181 (8%)	***
Received ≥4 Effective Drugs	2542 (76%)	1571 (69.7%)	***
Year of Treatment Initiation			
1993-2003	17 (0.5%)	189 (8.4%)	***
2004-2008	2313 (69.2%)	792 (35.2%)	***
2009-2012	655 (19.6%)	919 (40.8%)	***
2013-2016	358 (10.7%)	353 (15.7%)	***
Outcomes			
Treatment Success	2073 (62.0%)	1439 (63.9%)	
Failure or Recurrence	248 (7.4%)	186 (8.3%)	
Death	390 (11.7%)	330 (14.6%)	**
Lost to Follow-up	632 (18.9%)	298 (13.2%)	***

*p < 0.05; **p < 0.01; ***p < 0.001 across groups according to Kruskal-Wallis test for age, and according to Chi-Square test for all others

†Percentages reflective of those where the information is known

Abbreviations: IQR, interquartile range; HIV, human immunodeficiency virus

Appendix Table 12. Multivariable Estimates of Primary Outcomes for All Analyses

Characteristic	Primary Analysis: Imputed Dataset		Strict Complete Case Analysis		Complete Case Except DST Analysis	
	n/N with Outcome	aOR (95% CI)	n/N with Outcome	aOR (95% CI)	n/N with Outcome	aOR (95% CI)
All Unfavorable Outcomes vs. Success						
AFB Smear Negative & No Cavities on CXR	220/774	1.0 (Reference)	56/246	1.0 (Reference)	114/412	1.0 (Reference)
AFB Smear Negative & Cavities on CXR	214/647	1.0 (0.8 to 1.4)	47/172	1.0 (0.6 to 1.7)	114/366	0.9 (0.7 to 1.3)
AFB Smear Positive & No Cavities on CXR	492/1424	1.2 (0.96 to 1.5)	168/464	1.7 (1.1 to 2.5)	286/782	1.3 (0.9 to 1.7)
AFB Smear Positive & Cavities on CXR	1158/2751	1.6 (1.3 to 2.0)	362/924	1.6 (1.1 to 2.3)	756/1783	1.5 (1.1 to 1.9)
Mortality vs. Survival						
AFB Smear Negative & No Cavities on CXR	79/774	1.0 (Reference)	16/246	1.0 (Reference)	39/412	1.0 (Reference)
AFB Smear Negative & Cavities on CXR	85/647	1.1 (0.7 to 1.6)	8/172	0.7 (0.3 to 1.7)	32/366	0.7 (0.4 to 1.2)
AFB Smear Positive & No Cavities on CXR	166/1424	1.2 (0.8 to 1.7)	46/464	1.1 (0.5 to 2.1)	97/782	1.1 (0.7 to 1.7)
AFB Smear Positive & Cavities on CXR	390/2751	1.5 (1.1 to 2.1)	73/924	0.8 (0.4 to 1.6)	222/1783	1.0 (0.7 to 1.5)
Failure or Recurrence vs. Disease-Free Survival*						
AFB Smear Negative & No Cavities on CXR	38/695	1.0 (Reference)	6/230	1.0 (Reference)	13/373	1.0 (Reference)
AFB Smear Negative & Cavities on CXR	38/562	1.0 (0.6 to 1.7)	10/164	1.7 (0.6 to 5.0)	16/334	1.1 (0.5 to 2.3)
AFB Smear Positive & No Cavities on CXR	80/1258	1.4 (0.9 to 2.2)	25/418	3.4 (1.3 to 8.9)	42/685	1.9 (0.99 to 3.8)
AFB Smear Positive & Cavities on CXR	278/2361	2.2 (1.5 to 3.3)	92/851	3.1 (1.3 to 7.6)	177/1561	2.6 (1.4 to 4.9)

Abbreviations: aOR, adjusted odds ratio; CXR, chest x-ray; DST, drug susceptibility testing

Note: multivariable models account for clustering at the study level and are adjusted for age, sex, country-level income, HIV-infection status and antiretroviral therapy use, underweight body mass index, previous tuberculosis treatment history, bilateral disease on chest x-ray, resistance to fluoroquinolones, resistance to second-line injectables, effective Group A drugs received, effective non-Group A drugs received, and year of treatment initiation.

*Excludes all included participants who died

Appendix Table 13. Characteristics of Participants Included vs. Excluded in Culture Conversion Analysis

Characteristic	Included	Excluded (Culture Negative)	Excluded (No Culture Info)	
Number of Participants	4274	252	1070	
Demographic Characteristics†				
Median (IQR) Age, Years	37 (29 to 48)	37 (28 to 46)	35 (26 to 47)	**
Male Sex	2779 (65%)	143 (56.7%)	658 (61.5%)	**
Body Mass Index <18.5 kg/m ²	1059 (31.6%)	33 (17.5%)	232 (35.7%)	***
World Bank Income Classification of Country Where Participant Treated				
Treated in Low or Lower-Middle Income Country	720 (16.8%)	9 (3.6%)	300 (28%)	***
Treated in Upper-Middle Income Country	1847 (43.2%)	50 (19.8%)	283 (26.4%)	***
Treated in High-Income Country	1707 (39.9%)	193 (76.6%)	487 (45.5%)	***
Clinical Characteristics†				
Bilateral Disease on Chest X-Ray	2329 (70.1%)	71 (38%)	484 (71%)	***
Previously Treated for Tuberculosis	3133 (73.7%)	137 (54.4%)	785 (74.3%)	***
Previously Treated for Tuberculosis with Second Line Drugs	1161 (27.3%)	61 (24.2%)	220 (20.8%)	***
Living with HIV	524 (12.5%)	22 (9%)	140 (13.5%)	
If Living with HIV, Receiving Antiretroviral Treatment	292 (55.7%)	10 (45.5%)	60 (42.9%)	
Disease Characteristics†				
Fluoroquinolone Resistant	1135 (27.8%)	33 (15.2%)	363 (35.8%)	***
Second-Line Injectable Resistant	1413 (34.5%)	53 (24.4%)	334 (32.9%)	**
Resistant to Both Fluoroquinolone & Second-Line Injectables	759 (18.6%)	15 (6.9%)	159 (15.7%)	***
Treatment Given				
Moxifloxacin or Levofloxacin Given	2379 (55.7%)	194 (77%)	670 (62.6%)	
Linezolid Given	789 (18.5%)	44 (17.5%)	165 (15.4%)	***
Bedaquiline Given	674 (15.8%)	33 (13.1%)	39 (3.6%)	
Cycloserine or Terizidone Given	3318 (77.6%)	193 (76.6%)	801 (74.9%)	*
Clofazimine Given	325 (7.6%)	14 (5.6%)	55 (5.1%)	***
Amikacin Given	847 (19.8%)	43 (17.1%)	351 (32.8%)	***
Kanamycin or Capreomycin Given	2905 (68%)	142 (56.3%)	505 (47.2%)	***
Ethionamide or Prothionamide Given	3400 (79.6%)	166 (65.9%)	859 (80.3%)	*
Pyrazinamide Given	3117 (72.9%)	163 (64.7%)	778 (72.7%)	***
Carbapenems Given	221 (5.2%)	6 (2.4%)	14 (1.3%)	***
Received ≥4 Effective Drugs	3235 (75.7%)	198 (78.6%)	680 (63.6%)	
Year of Treatment Initiation				
1993-2003	156 (3.6%)	11 (4.4%)	39 (3.6%)	***
2004-2008	2404 (56.2%)	93 (36.9%)	608 (56.8%)	***
2009-2012	1093 (25.6%)	99 (39.3%)	382 (35.7%)	***
2013-2016	621 (14.5%)	49 (19.4%)	41 (3.8%)	***
Outcomes				
Treatment Success	2809 (65.7%)	214 (84.9%)	489 (45.7%)	***
Failure or Recurrence	399 (9.3%)	5 (2.0%)	30 (2.8%)	***
Death	448 (10.5%)	5 (2.0%)	267 (25.0%)	***
Lost to Follow-up	618 (14.5%)	28 (11.1%)	284 (26.5%)	***

*p < 0.05; **p < 0.01; ***p < 0.001 across groups according to Kruskal-Wallis test for age, and according to Chi-Square test for all others

†Percentages reflective of those where the information is known

Abbreviations: IQR, interquartile range; HIV, human immunodeficiency virus

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