

Supplementary Tables for  
"An Updated Systematic Review and Meta-Analysis for Treatment of Multidrug-Resistant Tuberculosis"

NOTE THAT REFERENCES ARE FOUND IN MAIN TEXT

Contents

<b>Supplemental Table S1. Characteristics and participants of the included studies .....</b>	<b>2</b>
<b>Supplemental Table S2. Summary of study quality of the included studies– by different criterias .....</b>	<b>6</b>
<b>Supplemental Table S3. Drug susceptibility test results for MDR patients reported in the included studies .</b>	<b>10</b>
<b>Supplemental Table S4. Treatment regimens reported in the included studies .....</b>	<b>13</b>
<b>Supplemental Table S5. End of treatment outcomes reported in the included studies .....</b>	<b>17</b>
<b>Supplemental Table S6. Adverse events reported in the included studies .....</b>	<b>20</b>
<b>Supplemental Table S7. Summary table of demographic and clinical characteristics of studies reporting severe adverse events (SAE). .....</b>	<b>24</b>
<b>Supplemental Table S8. Pooled success rate according to resistant pattern .....</b>	<b>25</b>
<b>Supplemental Table S9- Covariates associated with end of treatment outcomes for patients who received standardized regimens, XDR patients excluded<sup>1</sup> .....</b>	<b>26</b>
<b>Supplemental Table S10. Covariates associated with end of treatment outcomes for patients who received individualized regimens, XDR patients excluded (n=38 cohorts)<sup>1</sup> .....</b>	<b>28</b>
<b>Supplemental Table S11. Covariates associated with end of treatment outcomes for XDR patients (n=15 cohorts)<sup>1</sup> .....</b>	<b>30</b>



Reference	Author, Year	Study years	Study location	Standardized/ Individualized	Treatment outcome stratified by resistant pattern <sup>1</sup>	Number of participants Men:Women	Median age	HIV+ /n of tested	ARV treatment (n receiving/HIV+)	Diabetes	Smear positive	Cavitation	Any previous TB treatment	Previous FLD treatment	Previous SLD treatment
[39]	Van der Walt, 2013	2000-2004	South Africa	Standardized	NR	841:549	36.3 (SD 10.6) <sup>2</sup>	544/1390	NR	NR	861/1390	NR	1259/1390	NR	NR
[40]	Ahmad, 2015	2012-2013	Pakistan	Individualized	Only MDR	92:104	31.5 (SD 14.7) <sup>2</sup>	NR	NR	17/196	179/196	68/195	177/196	157/196	20/196
[41]	Blondal, 2012	2001-2003	Estonia	Individualized	MDR/XDR – Separate outcomes	154:57	42.9 (range 17.0–76.0)	5/211	NR	NR	118/211	161/211	110/211	76/211	34/211
[42]	Bloss, 2010	2000-2004	Latvia	Individualized	NR	780:247	42.3 (SD 12.7) <sup>2</sup>	32/1027	NR	NR	NR	222/1027	NR	532/1027	116/1027
[43, 44]	Cegielski, 2015; Yuen, 2015 <sup>4</sup>	2005-2008	Multination	Individualized	MDR/XDR – Separate outcomes	798:446	33	160/779	NR	166/1244	1064/1244	779/1244	NR	890/1244	182/1244
[45]	Chan, 2013	2000-2008	Taiwan	Individualized	NR	494:157	49.0 (IQR 39.0-61.0)	6/651	NR	234/651	419/651	282/651	406/651	NR	NR
[46]	Chang, 2012	1996-2009	Hong Kong	Individualized	NR	144:50	45.0 <sup>2</sup>	NR	NR	NR	145/194	101/194	NR	93/194	NR
[47]	Charles, 2014	2010-2013	Haiti	Individualized	Only MDR	50:60	28.0 (IQR 23.0–37.0)	27/110	27/27	NR	NR	NR	95/110	NR	NR
[48]	Dawson, 2015	2012-2013	South Africa and Tanzania	Individualized	NR	16:10	32.4 (SD 10.0) <sup>2</sup>	7/25	NR	NR	26/26	NR	NR	NR	NR
[49]	Dheda, 2010	2002-2008	South Africa	Individualized	Only XDR	85:89	33.0 (IQR 26.0–45.0)	82/174	52/82	NR	NR	NR	NR	NR	125/174
[50]	Diacon, 2014 <sup>3</sup>	N/A	Multination	Individualized	NR	45:21	32.0 (range 18.0–63.0)	5/66	NR	NR	66/66	54/66	NR	NR	0/66
				Individualized	NR	40:26	34 (range 18–57)	14/66	NR	NR	66/66	56/66	NR	NR	0/66
[51]	El-Din, 2015	2006-2009	Egypt	Individualized	NR	99:39	37.6 (SD 12.3) <sup>2</sup>	1/138	NR	48/138	NR	NR	132/138	NR	NR
[52]	Ferrer, 2010	1994-2007	USA	Individualized	NR	35:13	45 <sup>2</sup>	0/46	NR	13/46	46/46	NR	37/46	NR	NR
[53]	Gegia, 2012	2008-2010	Georgia	Individualized	MDR/XDR – Mixed outcomes	271:109	38 (range 16–81)	5/380	NR	35/380	NR	NR	334/380	253/380	81/380
[54]	Guglielmetti, 2015	2011-2013	France	Individualized	MDR/XDR – Mixed outcomes	28:7	39 (IQR 31–41)	0/35	NR	5/35	29/34	29/34	24/35	7/35	17/35
[55]	Hafkin, 2013	2005-2009	Botswana	Individualized	MDR/XDR – Mixed outcomes	51:19	38 (IQR 26–46)	40/70	36/40	NR	NR	NR	70/70	52/70	10/70
[56]	Helbling, 2014	2003-2010	Switzerland	Individualized	Only MDR	27:24	26 (range 2–56)	NR	NR	NR	25/44	NR	12/36	NR	NR
[57]	Hicks, 2014	2009-2010	South Africa	Individualized	MDR/XDR – Separate outcomes	36:48	8 (IQR 4–12)	64/83	62/64	NR	40/84	NR	32/84	NR	7/84
[58]	Jana, 2009	2003-2008	India	Individualized	NR	21:10	31.42 (SD 10.1) <sup>2</sup>	0/31	NR	NR	NR	23/31	NR	NR	NR
[59]	Jiang, 2013 <sup>3</sup>	2005-2010	China	Individualized	MDR/XDR – Mixed outcomes	35:37	43.8 (SD 10.3) <sup>2</sup>	0/72	NR	NR	67/72	58/72	NR	39/72	16/72
				Individualized	MDR/XDR – Mixed outcomes	54:32	45.1 (SD 14.6) <sup>2</sup>	0/86	NR	NR	75/86	46/86	NR	42/86	20/86

Reference	Author, Year	Study years	Study location	Standardized/ Individualized	Treatment outcome stratified by resistant pattern <sup>1</sup>	Number of participants Men:Women	Median age	HIV+ /n of tested	ARV treatment (n receiving/HIV+)	Diabetes	Smear positive	Cavitation	Any previous TB treatment	Previous FLD treatment	Previous SLD treatment
[60]	Jo, 2014	2006-2012	South Korea	Individualized	MDR/XDR – Mixed outcomes	43:27	40.6 (SD 12.9) <sup>2</sup>	0/9	NR	14/70	58/70	27/70	NR	49/70	39/70
[61]	Karagoz, 2009	1995-2000	Turkey	Individualized	NR	142:0	39 (SD 11.0) <sup>2</sup>	NR	NR	17/142	NR	NR	NR	NR	61/142
[62]	Kempker, 2015	2009-2012	Georgia	Individualized	Only MDR	103:38	34.9 (IQR 27.0–46.0)	6/141	NR	16/141	NR	30/141	NR	52/141	10/141
[63]	Koh, 2013	2010-2012	Korea	Individualized	NR	104:51	43	0/155	NR	7/155	95/155	88/155	77/155	NR	NR
[64]	Kvasnovsky, 2011	2006-2008	South Africa	Individualized	Only XDR	101:105	36.2 (SD 11.6) <sup>2</sup>	108/206	59/108	NR	89/184	50/184	NR	NR	155/203
[65]	Kwak, 2015 <sup>3</sup>	2006-2010	South Korea	Individualized	MDR/XDR – Mixed outcomes	69:54	37.0 (IQR 27.0–56.0)	NR	NR	10/123	NR	85/123	54/123	NR	NR
		1996–2000	South Korea	Individualized	NR	52:34	41.0 (IQR 26.0–55.0)	NR	NR	NR	NR	NR	NR	NR	NR
		2001–2005	South Korea	Individualized	NR	72:53	35.0 (IQR 25.0–50.0)	NR	NR	NR	NR	NR	NR	NR	NR
[66]	Laniado-Laborín, 2012	2006-2010	Mexico	Individualized	MDR/XDR – Mixed outcomes	25:17	37.8 (SD 14.5) <sup>2</sup>	NR	NR	8/42	NR	NR	NR	NR	NR
[67]	Lee, 2011 <sup>3</sup>	2002-2008	South Korea	Individualized	MDR/XDR – Mixed outcomes	69:54	42.0 (range 28.0-51.0)	NR	NR	17/123	NR	NR	59/123	NR	NR
				Individualized	MDR/XDR – Mixed outcomes	27:21	42.0 (range 28-53)	NR	NR	5/48	NR	NR	25/48	NR	NR
[68]	Leimane, 2010	2000-2004	Latvia	Individualized	MDR/XDR – Separate outcomes	780:247	43.1	32/1027	NR	NR	526/1027	704/1027	NR	532/1018	116/1018
[69]	Liu, 2011	1996-2009	China	Individualized	MDR/XDR – Separate outcomes	381:195	41.0 (range 2.0–99.0)	0/576	NR	62/576	425/576	318/576	395/576	NR	NR
[70]	Marks, 2014	2005-2007	USA	Individualized	MDR/XDR – Separate outcomes	68:67	38.2	14/116	10/14	24/121	103/135	58/135	NR	NR	NR
[71]	Milanov, 2015	2009-2010	Bulgaria	Individualized	MDR/XDR – Separate outcomes	35:15	42.8 (range 18.0-77.0) <sup>2</sup>	0/50	NR	NR	31/50	NR	31/50	NR	NR
[72]	Miller, 2012	2000-2004	Russian	Individualized	MDR/XDR – Mixed outcomes	306:101	40.0 (range 17.0–71.0)	NR	NR	NR	NR	249/407	NR	NR	NR
[73]	Modongo, 2012	2007-?	Botswana	Individualized	NR	140:73	38.0 (IQR 28.0-48.0)	135/213	130/135	NR	NR	NR	NR	NR	NR
[74]	Ndjeka, 2015	2013-2014	South Africa	Individualized	MDR/XDR – Mixed outcomes	55:36	35.0 (IQR 26.0–42.0)	54/91	54/54	NR	NR	NR	NR	NR	NR
[75]	O'Donnell, 2013	2006-2007	South Africa	Individualized	Only XDR	49:65	35.0 (IQR 30.0–42.0)	82/107	50/82	NR	67/114	NR	92/107	50/107	42/107
[76]	O'Donnell, 2015	2008-2010	South Africa	Individualized	Only XDR	95:121	35.5	165/197	114/165	NR	108/206	NR	207/216	NR	NR
[77]	Palacios, 2012	1996-2005	Peru	Individualized	Only MDR	40:12	30.5 (SD 10.7) <sup>2</sup>	52/52	27/52	1/52	19/52	22/52	50/52	NR	NR
[78]	Pazarli, 2013	2000-2005	Turkey	Individualized	NR	81:22	40.5 (SD 13.5) <sup>2</sup>	0/103	NR	17/103	NR	NR	NR	NR	NR

Reference	Author, Year	Study years	Study location	Standardized/ Individualized	Treatment outcome stratified by resistant pattern <sup>1</sup>	Number of participants Men:Women	Median age	HIV+ /n of tested	ARV treatment (n receiving/HIV+)	Diabetes	Smear positive	Cavitation	Any previous TB treatment	Previous FLD treatment	Previous SLD treatment
[79]	Pietersen, 2014	2002-2008	South Africa	Individualized	Only XDR	58:49	33 (IQR 27–43)	44/107	35/44	NR	NR	NR	NR	NR	95/107
[80]	Podewils, 2013	1999-2006	Philippine	Individualized	MDR/XDR – Mixed outcomes	351:232	37.5 (IQR 28.9–48.9)	NR	NR	144/583	NR	311/583	571/583	NR	NR
[81]	Qazi, 2011	2008-2010	Pakistan	Individualized	NR	35:50	29.7 (SD 12.6) <sup>2</sup>	NR	NR	8/85	80/85	34/85	NR	NR	11/85
[82]	Roberts- Witteveen, 2015	1999-2010	Australia	Individualized	MDR/XDR – Mixed outcomes	28:16	31.0 (range 15.0–73.0)	2/9	NR	NR	28/44	16/44	18/44	NR	NR
[83]	Satti, 2012	2008-2009	Lesotho	Individualized	NR	79:45	39.5 (IQR 33.0–46.0)	94/134	90/94	NR	15/134	96/134	129/134	NR	18/134
[84]	Seddon, 2012	2003-2008	South Africa	Individualized	MDR/XDR – Mixed outcomes	46:65	4.2 (IQR 1.6-9.0)	43/100	40/43	NR	53/85	38/109	28/111	NR	NR
[85]	Seung, 2014	1996-2007	Peru	Individualized	MDR/XDR - Separate outcomes	128:85	28.0 (IQR 16.0)	NR	NR	NR	NR	80/159	201/213	NR	NR
[86]	Shean, 2013	2002-2008	South Africa	Individualized	Only XDR	62:53	NR	48/115	34/48	NR	NR	NR	NR	NR	69/115
[87]	Smith, 2015	2005-2008	Russia	Individualized	MDR/XDR – Mixed outcomes	171:31	42.0	0/202	NR	NR	161/202	189/202	NR	69/202	73/202
[88]	Tang, 2013	2006-2011	China	Individualized	MDR/XDR - Separate outcomes	395:191	44.4 (SD 15.1) <sup>2</sup>	0/586	NR	80/586	NR	389/586	461/586	NR	NR
[89]	Tang, 2015	2009-2011	China	Individualized	Only XDR	43:22	44.0 (range 18.0–64.0) <sup>2</sup>	0/65	NR	12/65	NR	65/65	65/65	NR	NR
[90]	Van Heurck, 2013	1996-2010	Belgian	Individualized	MDR/XDR - Separate outcomes	52:26	33.0 (range 26.0-39.0)	10/78	NR	NR	NR	NR	39/84	16/84	23/84
[91]	Xu, 2012	2008-2011	China	Individualized	MDR/XDR Separate outcomes	29:10	38.0 (range 20.0-54.0) <sup>2</sup>	0/39	NR	1/39	36/39	36/39	39/39	NR	39/39

**Abbreviations:** ARV - Anti-retroviral, FLD - First line drug, SLD - Second line drugs, TB -Tuberculosis NR -Not reported

**Footnotes:**

<sup>1</sup> MDR: studies (cohorts) that reported only MDR or end of treatment outcome stratified by resistant pattern (i.e. MDR vs XDR)

Mixed MDR or not reported: studies that did not report end of treatment outcomes stratified by resistance pattern, or did not specify if XDR patients were included

Only XDR: cohorts that reported only XDR patients or end of treatment outcomes were stratified by resistance pattern

<sup>2</sup> Mean reported

<sup>3</sup> Studies 26, 33, 35, 50, 59, 65, 67 reported more than one cohort; studies 26, 33, 35 only have the demographic information for the whole study instead of each cohort.

<sup>4</sup> Studies 43 & 44 are unpublished data (by the time this systematic review was conducted) obtained by Dr. Dick Menzies through personal communication.

We combined the data of studies 43 & 44 because they used the same cohort. Cegielski, 2015 described the final outcomes of the treatment while Yuen, 2015 described the short-term outcomes.

Supplemental Table S2. Summary of study quality of the included studies– by different criterias

	DST information				Treatment regimen information				Outcome information				Score/Total possible score <sup>3</sup>	Score percentage	
Reference	Author, Year	Methods of MDR confirmation reported	DST for EMB/PZA reported	DST for FQN/SLI reported	Duration of intensive phase reported	No. of drugs used in intensive phase reported	Duration of continuation phase reported	No. of drugs used in continuation phase reported	Drug doses reported	Outcome meet WHO/Laserson definition <sup>1</sup>	Default rate <sup>2</sup>	AE definition or reference given	Identified the drug responsible for AE		
[18]	Baghaei, 2011	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	0.0%	Yes	Yes	10/12	83%
[19]	Bonnet, 2011	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	36.8%	N/A	N/A	7/10	70%
[20]	Brust, 2013	No	No	No	Yes	Yes	Yes	Yes	Yes	Only AE	N/A	Yes	Yes	7/10	70%
[21]	Brust, 2010	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	20.8%	N/A	N/A	6/10	60%
[22]	Brust, 2012	No	No	No	Yes	Yes	Yes	Yes	No	6-month culture conversion	N/A	No	No	4/10	40%
[23]	Chand, 2014	No	Yes	No	Yes	Yes	Yes	Yes	No		Yes	38.3%	N/A	N/A	6/10
[24]	Duraisamy, 2014	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	15.6%	No	No	6/12	50%
[25]	Farley, 2011	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	20.9%	N/A	N/A	6/10	60%
[26]	Ganzaya, 2013	Yes	No	No	No	No	No	No	No	Yes	15.2%	N/A	N/A	2/10	20%
[27]	Hire, 2014	No	No	No	No	Yes	No	Yes	No	Only AE	N/A	Yes	No	3/10	30%
[28]	Jain, 2014	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	23.1%	Yes	Yes	8/12	67%
[29]	Joseph, 2011	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	13.2%	Yes	Yes	9/12	75%
[30]	Malla, 2009	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	16.6%	No	No	6/12	50%
[31]	Modongo, 2014	No	No	No	Yes	Yes	Yes	No	Yes	Only AE	N/A	Yes	Yes	6/10	60%
[32]	Mugabo, 2015	No	No	No	No	Yes	No	No	No	Yes	26.7%	N/A	N/A	2/10	20%
[33]	Nagaraja, 2012	Yes	Yes	No	No	No	No	No	No	No	28.6%	Yes	Yes	4/12	33%
[34]	Oladimeji, 2014	No	No	No	Yes	Yes	Yes	Yes	No	6-month culture conversion	N/A	N/A	N/A	4/8	50%
[35]	Rodriguez, 2013	Yes	No	No	Yes	Yes	Yes	Yes	No		Yes	8.6%	N/A	N/A	6/10
[36]	Tabarsi, 2009	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	0.0%	N/A	N/A	7/10	70%
[37]	Tabarsi, 2010	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	0.0%	N/A	N/A	9/10	90%
[38]	Tabarsi, 2011	Yes	No	No	No	Yes	No	No	Yes	Yes	13.2%	No	No	4/12	33%
[39]	Van der Walt, 2013	No	No	No	Yes	Yes	Yes	Yes	No	Yes	20.8%	Yes	Yes	7/12	58%
[40]	Ahmad, 2015	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	8.7%	No	No	7/12	58%

Reference	Author, Year	Methods of MDR confirmation reported	DST for EMB/PZA reported	DST for FQN/SLI reported	Duration of intensive phase reported	No. of drugs used in intensive phase reported	Duration of continuation phase reported	No. of drugs used in continuation phase reported	Drug doses reported	Outcome meet WHO/Laserson definition <sup>1</sup>	Default rate <sup>2</sup>	AE definition or reference given	Identified the drug responsible for AE	Score/Total possible score <sup>3</sup>	Score percentage
[41]	Blondal, 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	22.3%	No	No	8/12	67%
[42]	Bloss, 2010	Yes	No	No	No	No	No	No	Yes	Yes	14.1%	Yes	Yes	5/12	42%
[43, 44]	Cegielski, 2015; Yuen, 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	21.8%	N/A	N/A	8/10	80%
[45]	Chan, 2013	No	Yes	Yes	No	No	No	No	No	Yes	N/R	N/A	N/A	3/10	30%
[46]	Chang, 2012	No	Yes	Yes	No	No	No	No	No	Yes	N/R	N/A	N/A	3/10	30%
[47]	Charles, 2014	Yes	Yes	Yes	No	No	No	No	No	Only AE	N/A	No	Yes	4/10	40%
[48]	Dawson, 2015	Yes	Yes	Yes	No	No	No	No	Yes	Only AE	N/A	Yes	No	5/10	50%
[49]	Dheda, 2010	No	Yes	Yes	No	No	No	No	No	6-month culture conversion	N/A	Yes	No	3/10	30%
[50]	Diacon, 2014	Yes	Yes	Yes	No	No	No	No	Yes	Yes	28.8%	Yes	No	6/12	50%
[51]	El-Din, 2015	No	No	No	No	No	No	No	No	Yes	0.7%	Yes	No	3/12	25%
[52]	Ferrer, 2010	Yes	Yes	Yes	No	No	No	No	Yes	Yes	23.9%	N/A	N/A	5/10	50%
[53]	Gegia, 2012	Yes	Yes	Yes	No	No	No	No	No	Yes	21.8%	N/A	N/A	4/10	40%
[54]	Guglielmetti, 2015	Yes	Yes	Yes	No	No	No	No	No	6-month culture conversion	N/A	Yes	Yes	5/10	50%
[55]	Hafkin, 2013	Yes	Yes	Yes	Yes	No	No	No	No	6-month culture conversion	N/A	Yes	Yes	6/10	60%
[56]	Helbling, 2014	Yes	Yes	Yes	No	No	No	No	No	Yes	13.7%	No	No	4/12	33%
[57]	Hicks, 2014	Yes	No	Yes	Yes	No	Yes	No	No	Yes	6.0%	No	Yes	7/12	58%
[58]	Jana, 2009	Yes	No	No	No	No	No	No	No	No	0.0%	No	Yes	3/12	25%
[59]	Jiang, 2013	Yes	Yes	Yes	No	No	No	No	No	Yes	6.3%	Yes	Yes	7/12	58%
[60]	Jo, 2014	Yes	Yes	Yes	No	No	No	No	No	Yes	15.7%	N/A	N/A	4/10	40%
[61]	Karagoz, 2009	Yes	No	No	No	No	No	No	Yes	Yes	11.3%	No	No	3/12	25%
[62]	Kempker, 2015	Yes	No	Yes	Yes	No	No	No	No	Yes	31.4%	N/A	N/A	4/10	40%
[63]	Koh, 2013	Yes	Yes	Yes	No	No	No	No	Yes	Only AE	N/A	Yes	Yes	6/10	60%
[64]	Kvasnovsky, 2011	Yes	No	No	No	No	No	No	No	Only AE	N/A	Yes	Yes	3/10	30%
[65]	Kwak, 2015	No	No	No	No	No	No	No	No	Yes	6.0%	Yes	Yes	4/12	33%

Reference	Author, Year	Methods of MDR confirmation reported	DST for EMB/PZA reported	DST for FQN/SLI reported	Duration of intensive phase reported	No. of drugs used in intensive phase reported	Duration of continuation phase reported	No. of drugs used in continuation phase reported	Drug doses reported	Outcome meet WHO/Laserson definition	Default rate	AE definition or reference given	Identified the drug responsible for AE	Score/Total possible score	Score percentage
[66]	Laniado-Laborin, 2012	Yes	No	No	No	No	No	No	No	6-month culture conversion	N/A	No	No	1/10	10%
[67]	Lee, 2011	No	No	Yes	No	No	No	No	No	Yes	10.5%	No	No	2/12	17%
[68]	Leimane, 2010	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	14.1%	No	No	6/12	50%
[69]	Liu, 2011	Yes	Yes	Yes	No	No	No	No	No	Yes	18.9%	N/A	N/A	4/10	40%
[70]	Marks, 2014	No	Yes	Yes	No	No	No	No	No	Yes	11.2%	Yes	Yes	5/12	42%
[71]	Milanov, 2015	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	2.0%	N/A	N/A	7/10	70%
[72]	Miller, 2012	Yes	No	No	No	No	No	No	No	Yes	23.6%	No	No	2/12	17%
[73]	Modongo, 2012	No	No	No	No	No	No	No	No	Only AE	N/A	Yes	Yes	2/10	20%
[74]	Ndjeka, 2015	No	No	Yes	No	No	No	No	Yes	6-month culture conversion	N/A	Yes	Yes	4/10	40%
[75]	O'Donnell, 2013	Yes	No	No	No	No	No	No	No	Yes	16.7%	Yes	Yes	4/12	33%
[76]	O'Donnell, 2015	Yes	No	Yes	No	No	No	No	No	6-month culture conversion	N/A	N/A	N/A	2/8	25%
[77]	Palacios, 2012	No	Yes	Yes	No	No	No	No	No	Yes	17.3%	Yes	No	4/12	33%
[78]	Pazarli, 2013	Yes	No	No	No	No	No	No	No	Yes	1.9%	N/A	N/A	3/10	30%
[79]	Pietersen, 2014	Yes	Yes	Yes	No	No	No	No	No	Yes	15.0%	N/A	N/A	4/10	40%
[80]	Podewils, 2013	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	15.1%	N/A	N/A	6/10	60%
[81]	Qazi, 2011	Yes	Yes	Yes	No	No	No	No	No	6-month culture conversion	N/A	N/A	N/A	3/8	38%
[82]	Roberts-Witteveen, 2015	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	11.4%	Yes	Yes	9/12	75%
[83]	Satti, 2012	Yes	No	No	No	No	No	No	No	Yes	3.0%	N/A	N/A	3/10	30%
[84]	Seddon, 2012	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	7.2%	N/A	N/A	8/10	80%
[85]	Seung, 2014	No	No	Yes	No	No	No	No	No	6-month culture conversion	N/A	N/A	N/A	1/8	13%



Reference	Author, Year	Methods of MDR confirmation reported	DST for EMB/PZA reported	DST for FQN/SLI reported	Duration of intensive phase reported	No. of drugs used in intensive phase reported	Duration of continuation phase reported	No. of drugs used in continuation phase reported	Drug doses reported	Outcome meet WHO/Laserson definition	Default rate	AE definition or reference given	Identified the drug responsible for AE	Score/Total possible score	Score percentage
[86]	Shean, 2013	No	No	No	No	No	No	No	Yes	6-month culture conversion	N/A	Yes	Yes	3/10	30%
[87]	Smith, 2015	Yes	Yes	Yes	No	No	No	No	No	Yes	22.8%	N/A	N/A	4/10	40%
[88]	Tang, 2013	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	7.5%	N/A	N/A	7/10	70%
[89]	Tang, 2015	Yes	Yes	Yes	No	No	No	No	Yes	Yes	10.8%	Yes	Yes	7/12	58%
[90]	Van Heurck, 2013	No	Yes	Yes	No	No	No	No	No	Yes	42.9%	No	Yes	4/12	33%
[91]	Xu, 2012	Yes	Yes	Yes	No	No	No	No	Yes	Yes	39.5%	Yes	Yes	7/12	58%
Total	Reporting <sup>4</sup> (of 74)	48/74	36/74	42/74	29/74	26/74	27/74	20/74	15/74	51/54	13/52	28/44	26/44	-	-

#### Abbreviations:

MDR - multidrug-resistant tuberculosis      DST - Drug susceptibility testing      EMB - Ethambutol  
PZA - Pyrazinamide      FQN - Fluoroquinolones      SLI - Second Line Injectable  
AE - adverse event      N/R - Not reported  
N/A - Not applicable

#### Footnotes:

<sup>1</sup> Studies that did not report end of treatment outcomes, they are categorized into “Only AE” (only reported adverse events) or “6-month culture conversion”.

<sup>2</sup> Default rate was considered high if  $\geq 8\%$

<sup>3</sup> The highest total score possible for studies are:

- Only reported 6-month culture conversion: 8
- Only reported end of treatment outcomes: 10
- Only reported AE: 10
- Reported 6-month culture conversion and AE: 10
- Reported end of treatment outcome and AE, or all 3 outcomes: 12

<sup>4</sup> Denominator is for N studies that should have reported (54 studies reported EOT, 43 reported AE, 11 reported 6 month culture conversion)

<sup>5</sup> The studies 45 and 46 reported defaulted mixed with other unsuccessful outcomes.

Supplemental Table S3. Drug susceptibility test results for MDR patients reported in the included studies

Reference	Author, Year	Study participant	Reported XDR	Reported Pre-XDR SLI	Reported Pre-XDR FQN	Median No. of drugs resistant to	Resistant to First line drugs/ N of tested			Resistant to Second line injectable/N of tested			Resistant to Fluoroquinolones/ N of tested			Resistant to Group 4 drugs/ N of tested		
							PZA	EMB	SM	KM	AM	CM	OFX/CFX	MFX	LFX	PAS	CS	ETO/PTO
[18]	Baghaei, 2011	80	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[19]	Bonnet, 2011	68	3/67	No	No	NR	NR	NR	NR	21/67 to any SLI			3/67	NR	NR	NR	NR	25/67
[20]	Brust, 2013	91	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[21]	Brust, 2010	1209	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[22]	Brust, 2012	80	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[23]	Chand, 2014	81	No	No	No	NR	NR	7/81	16/81	NR	NR	NR	NR	NR	NR	NR	NR	NR
[24]	Duraisamy, 2014	179	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[25]	Farley, 2011	757	No	No	No	NR	NR	197/290	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[26]	Ganzaya, 2013 <sup>2</sup>	31	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		31	No	No	No	NR	NR	NR	31/31	NR	NR	NR	NR	NR	NR	NR	NR	NR
		76	No	No	No	NR	NR	76/76	76/76	NR	NR	NR	NR	NR	NR	NR	NR	NR
[27]	Hire, 2014	110	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[28]	Jain, 2014	130	No	No	No	NR	NR	63/130	74/130	NR	NR	NR	NR	NR	NR	NR	NR	NR
[29]	Joseph, 2011	38	0/38	No	No	NR	NR	NR	NR	1/38	NR	NR	5/38	NR	NR	NR	NR	12/38
[30]	Malla, 2009	175	No	No	No	NR	NR	139/175	159/175		NR	NR	NR	NR	NR	NR	NR	NR
[31]	Modongo, 2014	437	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[32]	Mugabo, 2015	363	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[33]	Nagaraja, 2012 <sup>2</sup>	146	No	No	No	NR	NR	146/146	146/146	NR	NR	NR	NR	NR	NR	NR	NR	NR
		39	No	No	No	NR	NR	NR	39/39	NR	NR	NR	NR	NR	NR	NR	NR	NR
		20	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		19	No	No	No	NR	NR	19/19	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[34]	Oladimeji, 2014	162	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[35]	Rodriguez, 2013 <sup>2</sup>	55	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		50	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[36]	Tabarsi, 2009	33	0/33	No	No	NR	NR	NR	NR	8/33	16/33	11/33	1/33	NR	NR	7/33	11/33	5/33
[37]	Tabarsi, 2010	51	12/51	No	No	NR	36/45	40/50	NR	17/51	21/49	22/51	13/51	NR	NR	15/49	18/51	14/51
[38]	Tabarsi, 2011	53	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[39]	Van der Walt, 2013	1390	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[40]	Ahmad, 2015	196	0/196	No	No	5 (range 2–7)	191/196	161/196	131/196	1/196	1/196	2/196	108/196	NR	NR	NR	NR	13/196

Reference	Author, Year	Study participant	Reported XDR	Reported Pre-XDR SLI	Reported Pre-XDR FQN	Median No. of drugs resistant to	PZA	EMB	SM	KM	AM	CM	OFX/CFX	MFx	LFx	PAS	CS	ETO/PTO
[41]	Blondal, 2012	211	43/211	No	No	NR	NR	198/211	NR	17/121 to all SLI			47/211	NR	NR	NR	NR	63/211
[42]	Bloss, 2010	1027	No	No	No	6 (range 2-12)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[43, 44]	Cegielski, 2015; Yuen, 2015	1244	71/1244	109/1244	63/1244	4 (IQR 3-5)	469/904	766/1244	815/1244	209/1244	179/1244	136/1244	144/1244	NR	NR	116/1244	NR	230/1244
[45]	Chan, 2013	651	No	No	No	NR	22/651	627/651	631/651	292/651	7/651	94/651	203/651	85/651	119/651	282/651	4/651	255/651
[46]	Chang, 2012	194	No	No	No	NR	71/194	80/194	139/194	23/194 to any SLI			35/194	NR	NR	NR	10/194	24/194
[47]	Charles, 2014	110	0/211	No	No	3.8 (SD 1.4) <sup>1</sup>	54/107	83/107	55/107	0/107	NR	0/107	1/107	NR	NR	0/107	0/107	17/107
[48]	Dawson, 2015	26	No	No	No	NR	17/26	NR	NR	NR	NR	NR	NR	1/26	NR	NR	NR	NR
[49]	Dheda, 2010	174	174/174	No	No	NR	NR	62/117	NR	50/50	124/124	22/42	174/174	NR	NR	NR	NR	59/167
[50]	Diacon, 2014	66	No	9/54	6/54	NR	38/56	NR	NR	9/54 to any SLI			6/54 to any FQN			NR	NR	NR
		66	No	8/58	4/58	NR	33/59	NR	NR	8/58 to any SLI			4/58 to any FQN			NR	NR	NR
[51]	El-Din, 2015	138	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[52]	Ferrer, 2010	46	No	No	No	3.75 <sup>1</sup>	10/46	13/46	19/46	NR	NR	NR	2/46	NR	NR	NR	NR	11/46
[53]	Gegia, 2012	380	49/380	No	No	5.4 (range 2–10) <sup>1</sup>	85/380	252/380	348/380	137/380	NR	89/380	84/380	NR	NR	58/380	17/380	225/380
[54]	Guglielmetti, 2015	35	19/35	4/35	10/35	9 (range 5-12)	25/35	28/35	32/35	21/35	11/35	14/35	29/35	21/35	NR	11/35	21/35	28/35
[55]	Hafkin, 2013	70	2/70	No	No	5 (IQR 5–5)		47/70	44/66	4/34	NR	NR	5/31	NR	NR	NR	NR	13/34
[56]	Helbling, 2014	51	0/51	No	No	4 (range 0–8)	27/50	29/51	42/51		5/50	1/34	6/46	6/28	0/4	19/37	18/36	28/49
[57]	Hicks, 2014	84	6/84	10/84 pre-XDR		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[58]	Jana, 2009	31	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
[59]	Jiang, 2013 <sup>2</sup>	72	23/72	No	No	5.6 (SD 1.2) <sup>1</sup>	NR	45/72	58/72	NR	22/72	38/72	46/72	NR	NR	4/72	NR	1/72
		86	25/86	No	No	5.5 (SD 1.9) <sup>1</sup>	NR	64/86	60/86	NR	24/86	26/86	52/86	NR	NR	10/86	NR	3/86
[60]	Jo, 2014	70	26/70	No	No	NR	54/70	57/70	33/70	24/70		14/70	70/70	48/70		33/70	24/70	34/70
[61]	Karagoz, 2009	142	No	No	No	4 (SD ± 1) <sup>1</sup>	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[62]	Kempker, 2015	141	0/141	47/141	No	5 (IQR 5–6)	NR	NR	NR	NR	NR	NR	9/141	NR	NR	NR	NR	NR
[63]	Koh, 2013	155	3/155	No	No	4 (range 3-5)	47/155	91/155	48/155	10/155	6/155	8/155	3/155	NR	NR	23/155	3/155	13/155
[64]	Kvasnovsky, 2011	206	206/206	No	No	4.2 (SD 0.5) <sup>1</sup>	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[65]	Kwak, 2015 <sup>2</sup>	123	26/123	33/123	13/123	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		86	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		125	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[66]	Laniado-Laborín, 2012	42	2/42	No	No	4.15 (SD 1.3) <sup>1</sup>	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[67]	Lee, 2011 <sup>2</sup>	123	10/123	No	No	4 (range 3-5)	NR	NR	NR	NR	NR	NR	18/123	NR	NR	NR	NR	NR
		48	7/48	No	No	5 (range 4-7)	NR	NR	NR	NR	NR	NR	17/48	NR	NR	NR	NR	NR

Reference	Author, Year	Study participant	Reported XDR	Reported Pre-XDR SLI	Reported Pre-XDR FQN	Median No. of drugs resistant to	PZA	EMB	SM	KM	AM	CM	OFX/CFX	MFx	LFX	PAS	CS	ETO/PTO
[68]	Leimane, 2010	1027	48/1027	No	No	NR	705/1027	634/1027	976/1027	437/1027	NR	250/1027	66/1027	NR	NR	281/1027	20/1027	262/1027
[69]	Liu, 2011	576	48/576	No	No	NR	159/576	301/576	298/576	185/576	NR	NR	114/576	NR	114/576	143/576	NR	NR
[70]	Marks, 2014	135	5/134	22/134	pre-XDR	5 (range 2-16)	63/134	82/134	90/131	13/114	8/105	5/129	17/105	8/54	8/70	15/107	5/100	36/131
[71]	Milanov, 2015	50	8/50	No	No	NR	NR	30/50	33/50	11/50 to any SLI			NR	NR	NR	NR	NR	NR
[72]	Miller, 2012	407	20/407	No	No	5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[73]	Modongo, 2012	213	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[74]	Ndjeka, 2015	91	34/91	16/91	41/91	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[75]	O'Donnell, 2013	114	114/114	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[76]	O'Donnell, 2015	216	216/216	No	No	5.7 <sup>1</sup>	NR	NR	NR	NR	NR	47/52	NR	NR	NR	NR	NR	NR
[77]	Palacios, 2012	52	0/52	No	No	NR	24/47	33/50	36/50	2/25	1/9	2/15	NR	NR	NR	3/28	NR	8/26
[78]	Pazarli, 2013	103	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[79]	Pietersen, 2014	107	107/107	No	No	NR	47/56	49/56	NR	56/56 to any injectable			56/56	NR	NR	3/48	NR	39/56
[80]	Podewils, 2013	583	22/583	2/583	186/583	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[81]	Qazi,2011	85	No	No	No	NR	38/85	26/85	48/85	1/85 to any SLI			23/85 to any FQN			2/85 to any group 4 drugs		
[82]	Roberts-Witteveen, 2015	44	2/55	No	No	5 (range 2-10)	19/55	5/55	25/55	1/55	4/55	3/55	7/55	1/55	NR	3/55	4/55	26/55
[83]	Satti, 2012	134	No	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[84]	Seddon, 2012	111	5/42	3/42	4/42	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[85]	Seung, 2014	213	19/156	No	No	NR	NR	NR	NR	78/169 to any SLI			28/157 to any FQN			NR	NR	NR
[86]	Shean, 2013	115	115/115	No	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
[87]	Skripconoka, 2013	202	7/171	No	No	NR	NR	135/171	163/171	72/171	30/171	13/171	10/171	NR	NR	54/171	NR	46/171
[88]	Tang, 2013	586	169/586	No	No	NR	NR	472/586	472/586	NR	174/ 586	182/586	406/586	NR	NR	NR	NR	NR
[89]	Tang, 2015	65	65/65	No	No	NR	NR	59/65	60/65	NR	51/65	50/65	65/65	NR	NR	NR	NR	NR
[90]	Van Heurck, 2013	78	11/84	No	No	6.5 (IQR 4.5-9)	54/84	56/84	52/84	NR	24/84	10/84	21/84	12/84	NR	28/84	9/84	24/84
[91]	Xu, 2012	39	19/39	No	No	6 (range 2-11)	NR	30/39	33/39	NR	17/39	18/39	31/39	NR	NR	3/39	NR	NR

Abbreviations:

XDR - Extensively drug resistant	SLI - Second Line Injectable	FQN - Fluoroquinolones	NR - Not reported
PZA - Pyrazinamide	EMB - Ethambutol	SM - Streptomycin	
KM - Kanamycin	AM - Amikacin	CM - Capreomycin	
OFX - Ofloxacin	MXF - Moxifloxacin	LFX - Levofloxacin	
PAS - Para- aminosalicylic acid	CS - Cycloserine	ETO/PTO - Ethionamide/Prothionamide	

Footnotes

- <sup>1</sup> Mean reported
- <sup>2</sup> Studies 26, 33, 35, 50, 59, 65, 67 reported more than one cohort

Supplemental Table S4. Treatment regimens reported in the included studies

	Treatment duration							First line drugs used			Second line injectable used		Fluoroquinolones used				Group 4 drugs used			Group 5 drugs used		
Reference	Author, Year	Study participant	Standardized/ Individualized	DOT?	No. of drugs used	Total duration	Intensive phase duration	PZA	EMB	SM	KM/AM	CM	OFX/ CFX	MFX	LFX	GATI	PAS	CS/TZD	ETO/ PTO	Any Group 5	High-dose INH	BDQ
[18]	Baghaei, 2011	80	Standardized	Yes	6	≥ 18	≥ 6	Used if susceptible	Used if susceptible	0/80	80/80	0/80	80/80	0/80	0/80	0/80	0/80	80/80	80/80	0/80	0/80	0/80
[19]	Bonnet, 2011	68	Standardized	Yes	5	NR	≥ 6	0/68	0/68	0/68	0/68	68/68	68/68	Used either OFX or MFX	0/68	68/68	68/68	68/68	68/68	0/68	0/68	0/68
[20]	Brust, 2013	91	Standardized	Yes	6	24	≥ 6	91/91	91/91	0/91	91/91	0/91	91/91	0/91	0/91	0/91	0/91	91/91	91/91	0/91	0/91	0/91
[21]	Brust, 2010	1209	Standardized	Yes	5	NR	4-6	1209/1209	Used if susceptible	0/1209	1209/1209	0/1209	1209/1209	0/1209	0/1209	0/1209	0/1209	Used	1209/1209	0/1209	0/1209	0/1209
[22]	Brust, 2012	80	Standardized	Yes	5-6	24	6	80/80	Used if susceptible	0/80	80/80	0/80	80/80	0/80	0/80	0/80	0/80	80/80	80/80	0/80	0/80	0/80
[23]	Chand, 2014	81	Standardized	No	6	NR	6-9	81/81	81/81	0/81	81/81	0/81	0/81	0/81	81/81	0/81	0/81	81/81	81/81	0/81	0/81	0/81
[24]	Duraisamy, 2014	179	Standardized	Yes	6	24	6	179/179	179/179	0/179	179/179	0/179	0/179	0/179	179/179	0/179	0/179	179/179	179/179	0/179	0/179	0/179
[25]	Farley, 2011	757	Standardized	Yes	5	16-24	4-6	757/757	757/757	0/757	757/757 used any SLI		757/757	0/757	0/757	0/757	0/757	0/757	757/757	0/757	0/757	0/757
[26]	Ganzaya, 2013 <sup>2</sup>	31	Standardized	NR	6	≥ 18	NR	31/31	31/31	31/31	31/31	0/31	31/31	0/31	0/31	0/31	0/31	0/31	31/31	0/31	0/31	0/31
		31	Standardized	NR	6	≥ 18	NR	31/31	31/31	0/31	31/31	0/31	31/31	0/31	0/31	0/31	0/31	31/31	31/31	0/31	0/31	0/31
		76	Standardized	NR	5	≥ 18	NR	76/76	0/76	0/76	76/76	0/76	76/76	0/76	0/76	0/76	0/76	76/76	76/76	0/76	0/76	0/76
[27]	Hire, 2014	110	Standardized	Yes	6	NR	NR	110/110	110/110	0/110	110/110	0/110	0/110	0/110	110/110	0/110	0/110	110/110	110/110	0/110	0/110	0/110
[28]	Jain, 2014	130	Standardized	Yes	6	NR	6-9	130/130	130/130	0/130	130/130	0/130	130/130	0/130	0/130	0/130	0/130	130/130	130/130	0/130	0/130	0/130
[29]	Joseph, 2011	38	Standardized	Yes	6	NR	6-9	38/38	38/38	0/38	38/38	0/38	38/38	0/38	0/38	0/38	0/38	38/38	38/38	0/38	0/38	0/38
[30]	Malla, 2009	175	Standardized	Yes	5	NR	8-12	175/175	0/175	0/175	175/175	0/175	175/175	0/175	0/175	0/175	0/175	175/175	175/175	0/175	0/175	0/175
[31]	Modongo, 2014	437	Standardized	Yes	5	≥ 18	NR	437/437	0/437	0/437	437/437	0/437	0/437	0/437	437/437	0/437	0/437	437/437	437/437	0/437	0/437	0/437
[32]	Mugabo, 2015	363	Standardized	Yes	6	NR	NR	363/363	360/363	0/363	336/363	0/363	362/363	0/363	0/363	0/363	0/363	336/363	336/363	0/363	0/363	0/363
[33]	Nagaraja, 2012 <sup>2</sup>	146	Standardized	NR	6	18-24	NR	146/146	0/146	0/146	146/146	0/146	146/146	Used either OFX or LFX		0/146	146/146	146/146	146/146	0/146	0/146	0/146
		39	Standardized	NR	5	18-24	NR	39/39	39/39	0/39	39/39	0/39	39/39	Used either OFX or LFX		0/39	0/39	0/39	39/39	0/39	0/39	0/39
		20	Standardized	NR	5	18-24	NR	20/20	20/20	20/20	0/20	0/20	20/20	Used either OFX or LFX		0/20	0/20	0/20	20/20	0/20	0/20	0/20
		19	Standardized	NR	5	18-24	NR	19/19	0/19	19/19	0/19	0/19	19/19	Used either OFX or LFX		0/19	Used	Used	19/19	0/19	0/19	0/19
[34]	Oladimeji, 2014	162	Standardized	Yes	5	NR	6-8	162/162	0/162	0/162	162/162 used any SLI		0/162	0/162	162/162	0/162	0/162	162/162	162/162	0/162	0/162	0/162
[35]	Rodriguez, 2013 <sup>2</sup>	55	Standardized	Yes	5	18–24	≥ 6	55/55	0/55	0/55	55/55 used any SLI		55/55	Used either OFX or LFX		0/55	0/55	55/55	55/55	0/55	0/55	0/55
		50	Standardized	Yes	5	18–24	≥ 6	50/50	50/50	0/50	50/50 used any SLI		50/50	Used either OFX or LFX		0/50	0/50	50/50	50/50	0/50	0/50	0/50
[36]	Tabarsi, 2009	33	Standardized	NR	≥ 4	24	≥ 6	First-line used if susceptible			33/33	0/33	33/33	0/33	0/33	0/33	0/33	33/33	33/33	0/33	0/33	0/33
[37]	Tabarsi, 2010	51	Standardized	Yes	4	24	≥ 6	First-line used if susceptible			51/51	0/51	51/51	0/51	0/51	0/51	0/51	51/51	51/51	0/51	0/51	0/51

Reference	Author, Year	Study participant	Standardized/ Individualized	DOT?	No. of drugs used	Total duration	Intensive phase duration	PZA	EMB	SM	KM/AM	CM	OFX/ CFX	MFX	LFX	GATI	PAS	CS/TZD	ETO/ PTO	Any Group 5	High-dose INH	BDQ
[38]	Tabarsi, 2011	53	Standardized	Yes	4	NR	NR	0/53	0/53	0/53	53/53	0/53	53/53	0/53	0/53	0/53	0/53	53/53	53/53	0/53	0/53	0/53
[39]	Van der Walt, 2013	1390	Standardized	Yes	5	16-22	4	1390/1390	Used if susceptible	0/1390	1390/1390	used any SLI	1390/1390	0/1390	0/1390	0/1390	0/1390	Used if EMB resistant	1390/1390	0/1390	0/1390	0/1390
[40]	Ahmad, 2015	196	Individualized	Yes	6 (5–8)	24 (range 20–34)	≥ 8	196/196	0/196	0/196	196/196	used any SLI	0/196	0/196	196/196	0/196	94/196	196/196	196/196	0/196	0/196	0/196
[41]	Blondal, 2012	211	Individualized	NR	6 (4–8)	19.8 (range 6.1–53.7)	NR	177/211	0/211	0/211	182/211	used any SLI	0/211	0/211	0/211	0/211	157/211	187/211	170/211	167/211	0/211	0/211
[42]	Bloss, 2010	1027	Individualized	Yes	6 (range 3-8) <sup>1</sup>	18.3 (range 0.7-46.5)	NR	560/1027	451/1027	42/1027	539/1027	636/1027	1027/1027	0/1027	0/1027	0/1027	686/1027	870/1027	871/1027	761/1027	0/1027	0/1027
[43, 44]	Cegielski, 2015; Yuen, 2015	1244	Individualized	Yes	5 (IQR 5-6)	NR	7 (IQR 4.7-10.4)	643/1244	406/1244	21/1244	884/1244	282/1244	952/1244	274/1244	75/1244	0/1244	662/1244	0/1244	993/1244	0/1244	0/1244	0/1244
[45]	Chan, 2013	651	Individualized	Yes	NR	20.7-25.5	NR	452/651	423/651	281/651	188/651	1/651	46/651	239/651	302/651	0/651	294/651	147/651	439/651	2/651	0/651	0/651
[46]	Chang, 2012	194	Individualized	No	NR	NR	NR	107/194	106/194	37/194	125/194	used any SLI	0/194	0/194	0/194	0/194	95/194	0/194	164/194	4/194	0/194	0/194
[47]	Charles, 2014	110	Individualized	Yes	NR	17.8 (IQR 10.3–24.0)	NR	106/110	0/110	0/110	96/110	14/110	0/110	14/110	86/110	0/110	64/110	108/110	0/110	2/110	44/110	0/110
[48]	Dawson, 2015	26	Individualized	Yes	NR	NR	NR	Used	0/26	0/26	0/26	0/26	0/26	Used	0/26	0/26	0/26	0/26	0/26	0/26	0/26	0/26
[49]	Dheda, 2010	174	Individualized	Yes	7 (IQR 6–8)	NR	NR	140/174	103/174	1/174	7/174	162/174	31/174	14/174	0/174	0/174	156/174	147/174	107/174	77/174	0/174	0/174
[50]	Diacon, 2014	66	Individualized	NR	6	18-24	NR	65/66	46/66	0/66	64/66	used any SLI	66/66	0/66	0/66	0/66	0/66	25/66	65/66	Used	0/66	66/66
[51]	El-Din, 2015	138	Individualized	NR	5	NR	NR	3/138	25/138	5/138	115/138	18/138	138/138	0/138	0/138	0/138	137/138	136/138	137/138	0/138	0/138	0/138
[52]	Ferrer, 2010	46	Individualized	Yes	5 (range 4–7)	14 (range 1–27)	NR	20/46	20/46	5/46	32/46	31/46	21/46	0/46	20/46	0/46	1/46	31/46	20/46	1/46	0/46	0/46
[53]	Gegia, 2012	380	Individualized	Yes	NR	≥ 18	NR	0/380	0/380	0/380	380/380	used any SLI	0/380	380/380	used either MFX or LFX	0/110	64/110	108/110	0/110	2/110	0/110	0/110
[54]	Guglielmetti, 2015	35	Individualized	Yes	5 (range 3-6)	NR	NR	10/35	11/35	0/35	25/35	0/35	16/35	used any FQN			26/35	19/35	11/35	23/35	0/35	35/35
[55]	Hafkin, 2013	70	Individualized	Yes	4 (IQR 4–4)	NR	NR	67/70	20/70	3/70	55/70	5/70	65/70	5/70	0/70	0/70	5/70	48/70	0/70	8/70	0/70	0/70
[56]	Helbling, 2014	51	Individualized	NR	NR	18 (range 1-26)	NR	30/51	35/51	7/51	35/51	3/51	48/51	used any FQN, among which 39 used MFX			0/51	11/51	25/51	18/51	0/51	0/51
[57]	Hicks, 2014	84	Individualized	Yes	6 (IQR 5–7)	22.1 (IQR 18.6-24.3)	≥ 6	84/84	58/84	0/84	74/84	12/84	73/84	17/84	0/84	0/84	14/84	78/84	84/84	16/84	0/84	0/84
[58]	Jana, 2009	31	Individualized	Yes	5.65 (SD 1.9) <sup>1</sup>	NR	NR	14/31	22/31	7/31	18/31	5/31	16/31	0/31	3/31	0/31	18/31	10/31	19/31	13/31	0/31	0/31
[59]	Jiang, 2013 <sup>2</sup>	72	Individualized	NR	6.4 (SD 1.1) <sup>1</sup>	17.2 (SD 3.8) <sup>1</sup>	NR	51/72	22/72	0/72	27/72	47/72	0/72	0/72	0/72	0/72	55/72	0/72	62/72	24/72	0/72	0/72
		86	Individualized	NR	6.3 (SD 1.2) <sup>1</sup>	16.9 (SD 5.1) <sup>1</sup>	NR	59/86	6/86	0/86	25/86	65/86	0/86	0/86	0/86	0/86	71/86	0/86	71/86	27/86	0/86	0/86
[60]	Jo, 2014	70	Individualized	NR	5 (range 2–8)	21.3 <sup>1</sup>	NR	0/70	0/70	0/70	0/70	0/70	0/70	40/70	11/70	3/70	0/70	0/70	0/70	26/70	0/70	0/70
[61]	Karagoz, 2009	142	Individualized	Yes	5.5 (SD 0.8) <sup>1</sup>	18-24	NR	47/142	24/142	5/142	126/142	6/142	125/142	0/142	0/142	0/142	15/142	122/142	121/142	21/142	0/142	0/142

Reference	Author, Year	Study participant	Standardized/ Individualized	DOT?	No. of drugs used	Total duration	Intensive phase duration	PZA	EMB	SM	KM/AM	CM	OFX/ CFX	MFx	LFx	GATI	PAS	CS/TZD	ETO/ PTO	Any Group 5	High-dose INH	BDQ	
[61]	Karagoz, 2009	142	Individualized	Yes	5.5 (SD 0.8) <sup>1</sup>	18-24	NR	47/142	24/142	5/142	126/142	6/142	125/142	0/142	0/142	0/142	15/142	122/142	121/142	21/142	0/142	0/142	
[62]	Kempker, 2015	141	Individualized	Yes	≥ 4	NR	≥ 6	139/141	0/141	0/141	82/141	65/141	0/141	0/141	134/141	0/141	140/141	135/141	141/141	0/141	0/141	0/141	
[63]	Koh, 2013	155	Individualized	Yes	5 (IQR 5-6)	NR	NR	115/155	15/155	44/155	97/155	0/155	0/155	77/155	78/155	0/155	64/155	143/155	129/155	4/155	0/155	0/155	
[64]	Kvasnovsky, 2011	206	Individualized	NR	5.2 (SD 0.7)	NR	NR	200/206	190/206	0/206	0/206	200/206	0/206	0/206	0/206	0/206	170/206	90/206	145/206	0/206	0/206	0/206	
[65]	Kwak, 2015 <sup>2</sup>	123	Individualized	NR	5.0 (IQR 5–6)	24.4 (IQR 18.4–27.3)	NR	61/123	0/123	56/123	37/123	1/123	0/123	113/123	used later FQN			89/123	109/123	94/123	12/123	0/123	0/123
		86	Individualized	NR	6.0 (IQR 5–8)	41.5 (IQR 25.0–72.3)	NR	52/86	0/86	99/125 used any injectable			108/125 used any FQN, among which 103 used later FQN			92/125	113/125	100/125	3/125	0/86	0/86		
		125	Individualized	NR	6.0 (IQR 5–7)	31.5 (IQR 25.0–50.0)	NR	56/86	0/86	99/125 used any injectable			108/125 used any FQN, among which 103 used later FQN			92/125	113/125	100/125	3/125	0/86	0/86		
[66]	Laniado-Laborin, 2012	42	Individualized	Yes	5	NR	NR	Used	Used	42/42 used any injectable			0/42	42/42 used either MFx or LFX			0/42	Used	Used	Used	Used	0/42	0/42
[67]	Lee, 2011 <sup>2</sup>	123	Individualized	NR	5 (range 4-6)	19.8 (IQR 16.0-25.7)	NR	Used	54/123	123/123 used any injectable			0/123	0/123	123/123	0/123	Used	Used	Used	30/123	0/123	0/123	
		48	Individualized	NR	5 (range 4-6)	22.4 (IQR 17.7-25.9)	NR	Used	11/48	48/48 used any injectable			0/48	48/48	0/48	0/48	Used	Used	Used	22/48	0/48	0/48	
[68]	Leimane, 2010	1027	Individualized	Yes	6 (IQR 5–7)	18.3 (IQR 12.2–21.4)	NR	0/1207	0/1207	0/1207	522/1027	486/1027	982/1027	6/1027	0/1207	0/1207	558/1027	902/1027	791/1027	680/1027	0/1207	0/1207	
[69]	Liu, 2011	576	Individualized	Yes	NR	21.9 (IQR 21.1–22.6)	NR	498/576	357/576	98/576	171/576	6/576	92/576	26/576	240/576	0/576	295/576	0/576	0/576	373/576	0/576	0/576	
[70]	Marks, 2014	135	Individualized	Yes	5	20-32	NR	123/134	122/134	17/134	60/134	76/134	1/134	88/134	72/134	1/134	82/134	96/134	78/134	50/134	0/134	0/134	
[71]	Milanov, 2015	50	Individualized	Yes	6 (range 5-7)	≥ 18	≥ 6	50/50	Used	0/50	50/50 used any SLI		0/50	0/50	Used	0/50	Used	Used	Used	0/50	0/50	0/50	
[72]	Miller, 2012	407	Individualized	Yes	≥ 5	NR	NR	325/407	113/407	0/407	157/407	241/407	399/407	3/407	0/407	0/407	351/407	398/407	0/407	16/407	0/407	0/407	
[73]	Modongo, 2012	213	Individualized	NR	NR	NR	NR	0213	0/231	Used	Used	Used	Used	Used	Used	Used	16/213	Used	49/213	0/231	0/231	0/231	
[74]	Ndjeka, 2015	91	Individualized	NR	NR	NR	NR	Used	Used	0/91	Used	Used	0/91	0/91	76/91	0/91	Used	Used	Used	68/91	Used	91/91	
[75]	O'Donnell, 2013	114	Individualized	Yes	6 (IQR 5-7)	NR	NR	105/114	111/114	0/114	0/114	103/114	0/114	1/114	0/114	0/114	103/114	109/114	105/114	0/114	0/114	0/114	
[76]	O'Donnell, 2015	216	Individualized	NR	5	NR	NR	182/216	180/216	0/216	38/216	156/216	32/216	44/216	0/216	0/216	158/216	170/216	175/216	10/216	0/216	0/216	
[77]	Palacios, 2012	52	Individualized	Yes	NR	18-24	NR	31/52	29/52	2/52	36/52	14/52	52/52 used any FQN			43/52	47/52	44/52	0/52	0/52	0/52		
[78]	Pazarli, 2013	103	Individualized	NR	NR	18-24	NR	Used	Used	0/103	103/103 used any SLI		103/103	0/103	0/103	0/103	0/103	Used	Used	Used	0/103	0/103	
[79]	Pietersen, 2014	107	Individualized	Yes	8 (IQR 6–10)	22.1 (range 8.8–34.3)	NR	83/107	48/107	1/107	4/107	98/107	47/107	24/107	0/107	0/107	96/107	100/107	68/107	80/107	0/107	0/107	
[80]	Podewils, 2013	583	Individualized	Yes	NR	18	6	352/583	83/583	203/383	385/583	38/583	301/583	185/583	26/583	0/583	320/583	505/583	425/583	0/583	0/583	0/583	
[81]	Qazi, 2011	85	Individualized	Yes	NR	NR	NR	0/85	0/85	0/85	85/85	0/85	63/85	21/85	0/85	0/85	81/85	78/85	85/85	0/85	0/85	0/85	
[82]	Roberts-Witteveen, 2015	44	Individualized	Yes	7 (range 3–10)	22 (range 15–37)	NR	37/55	54/55	1/55	38/55	20/55	11/55	42/55	2/55	0/55	9/55	28/55	22/55	24/55	0/55	0/55	

Reference	Author, Year	Study participant	Standardized/ Individualized	DOT?	No. of drugs used	Total duration	Intensive phase duration	PZA	EMB	SM	KM/AM	CM	OFX/ CFX	MFX	LFX	GATI	PAS	CS/TZD	ETO/ PTO	Any Group 5	High-dose INH	BDQ
[83]	Satti, 2012	134	Individualized	Yes	NR	22.9 (IQR, 21.6–24.0)	NR	128/134	2/134	0/134	104/134	30/134	63/134	14/134	57/134	0/134	129/134	135/134	133/134	0/134	0/134	0/134
[83]	Satti, 2012	134	Individualized	Yes	NR	22.9 (IQR, 21.6–24.0)	NR	128/134	2/134	0/134	104/134	30/134	63/134	14/134	57/134	0/134	129/134	135/134	133/134	0/134	0/134	0/134
[84]	Seddon, 2012	111	Individualized	Yes	7.0 (range 4-13)	18 (range 8–26)	6 (0–18)	81/88	82/88	1/88	80/88	6/88	86/88	0/88	0/88	0/88	7/88	57/88	86/88	7/88	0/88	0/88
[85]	Seung, 2014	213	Individualized	Yes	9.0 (range 5-13)	NR	NR	92/213	70/213	32/213	114/213	109/213	193/213	108/213	9/213	0/213	191/213	205/213	178/213	120/213	0/213	0/213
[86]	Shean, 2013	115	Individualized	Yes	NR	NR	NR	80/115	46/115	0/115	7/115	104/115	29/115	2/115	0/115	0/115	101/115	104/115	66/115	77/115	0/115	0/115
[87]	Smith, 2015	171	Individualized	Yes	NR	NR	NR	0/171	0/171	0/171	0/171	104/171	135/171	31/171	0/171	0/171	0/171	0/171	0/171	79/171	0/171	0/171
[88]	Tang, 2013	586	Individualized	Yes	NR	24	NR	Used	Used	Used	586/586 used any SLI			586/586 used any FQN			Used	Used	Used	Used	0/586	0/586
[89]	Tang, 2015	65	Individualized	Yes	≥ 5.0	24	NR	65/65	0/65	0/65	35/65 used any SLI		0/65	65/65 used any later FQN			65/65	0/65	65/65	42/65	0/65	0/65
[90]	Van Heurck, 2013	78	Individualized	NR	NR	14.9 (range 11.0-20.5)	NR	NR	NR	NR	NR	NR	76/84 used any FQN				NR	NR	NR	NR	NR	NR
[91]	Xu, 2012	39	Individualized	Yes	7.0 (range 5-8)	NR	NR	30/39	6/39	0/39	12/39	10/39	0/39	9/39	17/39	11/39	17/39	0/39	28/39	39/39	0/39	0/39

Abbreviations

DOT - Directly observed treatment	SLI - Second Line Injectable	FQN - Fluoroquinolone
PZA - Pyrazinamide	EMB - Ethambutol	SM - Streptomycin
KM - Kanamycin	AM - Amikacin	CM - Capreomycin
OFX - Ofloxacin	MFX - Moxifloxacin	LFX - Levofloxacin
GAT - Gathifloxacin	PAS - Para-aminosalicylic acid	CS - Cycloserine
TZD - Terizidone	ETO/PTO - Ethionemide/Prothionamide	INH - Isoniazid
BDQ - Bedaquiline	NR - Not reported	

Footnotes

<sup>1</sup> Mean reported

<sup>2</sup> Studies 26, 33, 35, 50, 59, 65, 67 reported more than one cohort



Supplemental Table S5. End of treatment outcomes reported in the included studies

Reference	Author, Year	Study participant	6-month culture conversion	Cure	Complete	Failure	Death	Defaults	Relapse
[18]	Baghaei, 2011	80		59/80 Cure + Complete		21/80 Failure + Death		0/80	
[19]	Bonnet, 2011	68	37/68	13/68	9/68	5/68	16/68	25/68	
[20]	Brust, 2013	91				Only reported adverse events			
[21]	Brust, 2010	1209		491/1209	35/1209	208/1209	223/1209	252/1209	
[22]	Brust, 2012	80	66/80			Only reported 6 month culture conversion			
[23]	Chand, 2014	81		41/81		9/81	0/81	31/81	
[24]	Duraisamy, 2014	179		77/179	35/179	9/179	30/179	28/179	
[25]	Farley, 2011	757		159/757	189/757	74/757	177/757	158/757	
[26]	Ganzaya, 2013 <sup>1</sup>	31		20/31	4/31	0/31	0/31	7/31	
		31		18/31	4/31	4/31	1/31	4/31	
		76		44/76	6/76	8/76	7/76	10/76	
[27]	Hire, 2014	110				Only reported adverse events			
[28]	Jain, 2014	130	84/130	51/130	7/130	17/130	25/130	30/130	
[29]	Joseph, 2011	38	33/38	25/38	0/38	5/38	3/38	5/38	
[30]	Malla, 2009	175	112/175	123/175	0/175	9/175	14/175	29/175	
[31]	Modongo, 2014	437				Only reported 6 month culture conversion			
[32]	Mugabo, 2015	363		131/363	61/363	29/363	45/363	97/363	
[33]	Nagaraja, 2012 <sup>1</sup>	146		100/146		4/146	5/146	37/146	
		39		23/39		0/39	1/39	15/39	
		20		11/20		0/20	2/20	7/20	
		19		11/19		1/19	2/19	5/19	
[34]	Oladimeji, 2014	162	138/162			Only reported 6 month culture conversion			
[35]	Rodriguez, 2013 <sup>1</sup>	55		40/55	3/55	4/55	6/55	2/55	
		50		33/50	2/50	2/50	6/50	7/50	
[36]	Tabarsi, 2009	33		29/33		4/33 Failure + Death		0/33	
[37]	Tabarsi, 2010	51		39/51		8/51	4/51	0/51	
[38]	Tabarsi, 2011	53		33/53		6/53	7/53	7/53	
[39]	Van der Walt, 2013	1390		376/1390	334/1390	121/1390	270/1390	289/1390	
[40]	Ahmad, 2015	196		135/196	1/196	8/196	35/196	17/196	
[41]	Blondal, 2012	211		129/211 Cure + Complete		18/211	17/211	47/211	11/211

Reference	Author, Year	Study participant	6-month culture conversion	Cure	Complete	Failure	Death	Defaults	Relapse
[42]	Bloss, 2010	1027		681/1027	16/1027	124/1027	60/1027	146/1027	
[43, 44]	Cegielski, 2015; Yuen, 2015	1244	847/1137	656/1244	66/1244	172/1244	79/1244	271/1244	
[45]	Chan, 2013	651	316/651	461/651	Cure + Complete	190/651	Failure+ Death+ Defaults		
[46]	Chang, 2012	194		127/194	Cure + Complete	67/194	Failure + Death + Defaults + Relapse		
[47]	Charles, 2014	110				Only reported 6 month culture conversion			
[48]	Dawson, 2015	26				Only reported adverse events			
[49]	Dheda, 2010	174	23/174			Only reported 6 month culture conversion			
[50]	Diacon, 2014	66	52/66	38/66		5/66	8/66	15/66	
		66	38/66	21/66		20/66	2/66	23/66	
[51]	El-Din, 2015	138		122/138	4/138	0/138	11/138	1/138	
[52]	Ferrer, 2010	46		30/46		3/46	2/46	11/46	
[53]	Gegia, 2012	380		153/380	48/380	37/380	59/380	83/380	
[54]	Guglielmetti, 2015	35	28/29			Only reported 6 month culture conversion			
[55]	Hafkin, 2013	70	36/70			Only reported 6 month culture conversion			
[56]	Helbling, 2014	51		2/51	37/51	3/51	2/51	7/51	
[57]	Hicks, 2014	84		50/84	16/84	4/84	9/84	5/84	
[58]	Jana, 2009	31		20/31		6/31	1/31	0/31	4/31
[59]	Jiang, 2013 <sup>1</sup>	72		32/72	15/72	19/72	3/72	3/72	14/72
		86		32/86	16/86	26/86	5/86	7/86	12/86
[60]	Jo, 2014	70		32/70	4/70	22/70	1/70	11/70	
[61]	Karagoz, 2009	142		102/142	0/142	10/142	14/142	16/142	
[62]	Kempker, 2015	141		38/140	41/140	6/140	11/140	44/140	
[63]	Koh, 2013	155				Only reported adverse events			
[64]	Kvasnovsky, 2011	206				Only reported adverse events			
[65]	Kwak, 2015 <sup>1</sup>	123		92/123	11/123	7/123	5/123	6/123	2/123
		86		43/86	3/86	24/86	9/86	4/86	3/86
		125		64/125	22/125	16/125	10/125	10/125	3/125
[66]	Laniado-Laborín, 2012	42	42/42			Only reported 6 month culture conversion			
[67]	Lee, 2011 <sup>1</sup>	123		68/123	29/123	6/123	4/123	16/123	
		48		32/48	8/48	5/48	1/48	2/48	
[68]	Leimane, 2010	1027		681/1027	16/1027	124/1027	60/1027	145/1027	
[69]	Liu, 2011	576		175/576	121/576	152/576	19/576	109/576	

Reference	Author, Year	Study participant	6-month culture conversion	Cure	Complete	Failure	Death	Defaults	Relapse
[70]	Marks, 2014	135			105/134		12/134	17/134	
[71]	Milanov, 2015	50		16/50	8/50	6/50	19/50	1/50	
[72]	Miller, 2012	407		232/407	15/407	45/407	22/407	93/407	
[73]	Modongo, 2012	213				Only reported adverse events			
[74]	Ndjeka, 2015	91	48/63			Only reported 6 month culture conversion			
[75]	O'Donnell, 2013	114		15/114	10/114	22/114	48/114	19/114	
[76]	O'Donnell, 2015	216	47/216			Only reported 6 month culture conversion			
[77]	Palacios, 2012	52		11/52		1/52	31/52	9/52	
[78]	Pazarli, 2013	103		89/103		4/103	8/103	2/103	
[79]	Pietersen, 2014	107		7/107	10/107	25/107	49/107	16/107	
[80]	Podewils, 2013	583		384/583	15/583	21/583	75/583	88/583	
[81]	Qazi, 2011	85	40/85			Only reported 6 month culture conversion			
[82]	Roberts-Witteveen, 2015	44		19/44	17/44	0/44	3/44	5/44	
[83]	Satti, 2012	134		71/134	12/134	1/134	46/134	4/134	
[84]	Seddon, 2012	111		74/111	17/111	1/111	11/111	8/111	
[85]	Seung, 2014	213	65/213				11/213 <sup>3</sup>		
[86]	Shean, 2013	115	26/115			Only reported 6 month culture conversion			
[87]	Smith, 2015	171			94/171	18/171	20/171	39/171	
[88]	Tang, 2013	586		92/586	148/586	280/586	22/586	44/586	
[89]	Tang, 2015	65		24/65	10/65	19/65	5/65	7/65	
[90]	Van Heurck, 2013	78		0	42/84	5/84	1/84	36/84	
[91]	Xu, 2012	39		15/39		9/39	0/38	15/38	

#### Footnotes

<sup>1</sup> Studies 23, 30, 32, 47, 56, 62, 64 reported more than one cohort

<sup>2</sup> Whether the treatment outcome definitions meet the criteria defined by Laserson, 2005

**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 bacteriologic results (i.e., fewer than five cultures were performed in the final 12 months of therapy).

**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.

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

**Default:** An MDR-TB patient whose MDR-TB treatment was interrupted for 2 or more consecutive months for any reason.

<sup>3</sup> Eleven patients died during the follow up of 6 months.



Reference	Author, Year	Study participant	Reported adverse events	Reported Grade 3-5 AEs	Reported Drug stopped due to AEs	PZA	EMB	Injectable	Fluoroquinolones	PAS	CS/TZD	ETO/PTO	Group 5	BDQ
[39]	Van der Walt, 2013	1390	Yes	No	Yes	In 83/1390 drugs were withdrawn, either permanently or with reintroduction once the AE resolved. Specific drugs not identified								
[40]	Ahmad, 2015	196	Yes	No	No									
[41]	Blondal, 2012	211	Yes	No	Yes					77/211 stopped second line dugs				
[42]	Bloss, 2010	1027	Yes	No	Yes	40/560	4/451	6/42 SM, 98/539 KM, 47/636 CM	27/830 OFX, 9/506 CFX	193/686	58/870	114/871	127/761 THZ	
[43, 44]	Cegielki, 2015; Yuen, 2015	1244	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chan, 2013	651	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[45]	Chan, 2013	651	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[46]	Chang, 2012	194	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[47]	Charles, 2014	110	Yes	Yes	Yes						6/108			
[48]	Dawson, 2015	26	Yes	Yes	Yes			3/26 stopped study drug, 6/26 had grade 3-4 AEs, no specific drug information						
[49]	Dheda, 2010	174	Yes	No	Yes			26/161 stopped drug, no specific drug information						
[50]	Diacon, 2014	132	Yes	Yes	Yes			Grade 3-4: 63/81. Stopped treatment: 9/81, no specific drug information						
[51]	El-Din, 2015	138	Yes	No	No									
[52]	Ferrer, 2010	46	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[53]	Gegia, 2012	380	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[54]	Guglielmetti, 2015	35	Yes	No	Yes									2/35
[55]	Hafkin, 2013	70	Yes	No	Yes						6/48			
[56]	Helbling, 2014	51	Yes	No	No									
[57]	Hicks, 2014	84	Yes	No	0 stopped, 0 severe									
[58]	Jana, 2009	31	Yes	No	Yes			1/18 KM						
[59]	Jiang, 2013'	158	Yes	No	Yes	1/110		3/52 AM				6/133	1/51 LZD	
[60]	Jo, 2014	70	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[61]	Karagoz, 2009	142	Yes	No	Yes			50/142 stopped drugs due to AEs, no specific drug information						
[62]	Kempker, 2015	141	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[63]	Koh, 2013	155	Yes	Yes	Yes			4/78 LFX, 2/77 MFX						
[64]	Kvasnovsky, 2011	206	Yes	No	Yes					4/170		29/145		

Reference	Author, Year	Study participant	Reported adverse events	Reported Grade 3-5 AEs	Reported Drug stopped due to AEs	PZA	EMB	Injectable	Fluoroquinolones	PAS	CS/TZD	ETO/PTO	Group 5	BDQ
[65]	Kwak, 2015*	334	Yes	No	Yes								2/12 LZD	
[66]	Laniado-Laborin, 2012	42	Yes	No	No									
[67]	Lee, 2011*	171	Yes	No	No									
[68]	Leimane, 2010	1027	Yes	No	No									
[69]	Liu, 2011	576	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[70]	Marks, 2014	135	Yes	No	Yes								6/9 CFZ	
[71]	Milanov, 2015	50	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[72]	Miller, 2012	407	Yes	No	No									
[73]	Modongo, 2012	213	Yes	No	No									
[74]	Ndjeka, 2015	91	Yes	No	Yes									1/91
[75]	O'Donnell, 2013	114	Yes	Similar	Yes			4/103 CM died			8/109			
[76]	O'Donnell, 2015	216	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[77]	Palacios, 2012	52	Yes	No	Yes				25/52 stopped drugs, no specific drug information					
[78]	Pazarli, 2013	103	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[79]	Pietersen, 2014	107	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[80]	Podewils, 2013	583	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[81]	Qazi, 2011	85	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[82]	Roberts-Witteveen, 2015	44	Yes	No	Yes			12/37 AM		1/9			3/24 CFZ	
[83]	Satti, 2012	134	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[84]	Seddon, 2012	111	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[85]	Seung, 2014	213	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[86]	Shean, 2013	115	Yes	Yes	Yes		1/46	1/3 AM, 14/104 CM		7/101	2/104	7/66	2/65 AMC	
[87]	Smith, 2015	202	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[88]	Tang, 2013	586	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[89]	Tang, 2015	65	Yes	No	Yes				3/65 stopped drugs, no specific drug information					
[90]	Van Heurck, 2013	78	Yes	No	No									
[91]	Xu, 2012	39	Yes	No	Yes								23/39 CFZ	

**Abbreviations**

AE - Adverse event	PZA - Pyrazinamide	EMB - Ethambutol	NA - Not applicable
SM - Streptomycin	KM - Kanamycin	AM - Amikacin	
CM - Capreomycin	OFX - Ofloxacin	MFX - Moxifloxacin	
LFX - Levofloxacin	PAS - Para- aminosalicylic acid	CS - Cycloserine	
TZD - Terizidone	ETO/PTO - Ethionemide/Prothionamide	BDQ - Bedaquiline	
LZD - Linezolid	CFZ - Clofazimine	AMC - Amoxicillin/clavulanate	

**Footnotes**

<sup>1</sup> Studies 26, 33, 35, 50, 59, 65, 67 reported more than one cohort, while the adverse event information is for the whole

Supplemental Table S7. Summary table of demographic and clinical characteristics of studies reporting severe adverse events (SAE).

	Reported any SAE and identified the related drug	Did not report SAE/ or did not identify the related drug	Totals
<b>Studies (Cohorts)</b>	19 (20)	55 (64)	74 (84)
<b>Total Number of participants</b>	2,858	14,636	17,494
<b>Age (median years)</b>	36.6	36.4	36.4
<b>Clinical Characteristics<sup>1</sup></b>			
History of prior treatment with FLD	997/1,673	3,626/5,291	4,623/6,964
History of prior treatment with SLD	484/1,792	1,219/4,979	1,703/6,771
Patients with cavitation on CXR	807 /2,076	4,281/7,185	5,088/9,261
Patients with HIV co-infection	493/ 2,797	2,618/13,475	3,111/16,272
Patients with HIV receiving ART	344 /493	959/2,618	1,303/3,111
Positive AFB smears	771/1,047	5,286/7,796	6,057/8,843
<b>Drugs Received</b>			
Pyrazinamide			
Ethambutol	1,325	3,970	5,295
Amikacin / Kanamycin	1,441	7,597	9,038
Capreomycin	1,286	1,957	3,243
Ofloxacin / Ciprofloxacin	1,408	8,341	9,749
Moxifloxacin / levofloxacin	827	3,978	4,805
Thiamide	2,106	10,522	12,628
Cycloserine / Terizidone	2,140	6,086	8,226
PAS	1,706	4,304	6,010
<b>Regimen</b>			
Individualized	2,453	9,087	11,540
Standardized	405	5,549	5,954

**Abbreviations:** AFB - Acid-fast Bacilli, ART - Anti-retroviral treatment, CXR - Chest x-ray, FLD- First line-drug, SLD- Second line drug

**Footnotes**

<sup>1</sup>- For clinical characteristics variables, we added the denominator, since not all studies reported the clinical variables. The reporting of these clinical variables was not a criterion for inclusion in the review.



**Supplemental Table S8. Pooled success rate according to resistance pattern**

	Cohorts	N success/N patients	Pooled success rate <sup>1</sup> (95% CI)
Only MDR <sup>2</sup>	17	2559/4190	61% (53%-68%)
Mixed MDR or not reported <sup>3</sup>	44	5869/9913	65% (61%-70%)
Only XDR <sup>4</sup>	15	193/730	31% (19%-42%)
<b>% of patients resistant to SLI <sup>5</sup></b>			
0-11.9%	7	1578/2463	67% (56%-79%)
11.9-31.3%	8	333/522	63% (51%-74%)
31.3%-60.7%	8	1217/2051	55% (44%-67%)
≥60.7%	8	1136/1804	63% (51%-75%)
<b>% of patients resistant to FQN<sup>6</sup></b>			
0-6.4%	8	1061/1792	58% (47%-70%)
6.4-22.1%	7	1023/1510	65% (54%-77 %)
22.1%-55.3%	9	1333/2157	66% (56 %- 76 %)
≥55.3%	7	826/1355	57% (44%-69 %)

**Abbreviations:** MDR- Multi drug resistant, XDR- Extensively drug resistant, CI confidential intervals **SLI: Second-line injectable**

**Notes:**

1-Success outcome defined if cure or completed treatment

2-Only MDR: Only studies (cohorts) that reported only MDR or end of treatment outcome stratified by resistant pattern (i.e. MDR vs. XDR)

3-Mixed MDR or not reported: Studies that did not reported end of treatment outcomes stratified by resistant pattern or not informed if included XDR patients

4-Only XDR: Cohorts that reported only XDR patients or end of treatment stratified by resistant pattern

5-MDR patients also resistant to second line injectable, quartiles were used to categorize the variable, excluding all XDR cohorts and XDR patients from outcomes.

6-MDR patients also resistant to fluoroquinolones, quartiles were used to categorize the variable; excluding all XDR cohorts and XDR patients from outcomes.

Supplemental Table S9- Covariates associated with end of treatment outcomes for patients who received standardized regimens, XDR patients excluded<sup>1</sup>

Variable	Success/ Success + Fail + Relapse <sup>2</sup>				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success rates		Cohorts	Events	Pooled Success rates	
			Estimate	95% CI			Estimate	95% CI
<b>Any patients with HIV co-infection</b>								
No	11	414/465	90%	85%-95%	11	414/518	81%	74%-88%
Yes	12	2217/2685	91%	86%- 95%	12	2127/3496	74%	67%-82%
<b>Age<sup>3</sup></b>								
≤ 34 year (median)	13	1067/1333	88%	81%-95%	13	1067/1625	79%	72%-86%
> 34 year	10	1564/1817	87%	80%-94%	10	1564/2389	71%	63%-79%
<b>Number drugs used in the Initial intensive phase</b>								
4-5 drugs	14	1998/2440	90%	85%-94%	14	1998/3174	76%	69%-83%
≥ 6 drugs	9	633/710	91%	86%- 96%	9	633/840	80%	72%-88%
<b>Duration of the intensive phase</b>								
4-5 months	3	1584/1987	81%	73%-87%	3	1584/2657	59%	50%-69%
6 months	6	312/331	95%	92%-98%	6	312/399	80%	74%-86%
> 6 months	5	269/314	85%	79%-91%	5	269/370	72%	64%-80%
<b>Used Pyrazinamide for all of the patients<sup>4</sup></b>								
Yes	18	2454/2958	89%	85%-92%	18	2454/3775	78%	72%-84%
No	2	55/66	84%	70%-98%	2	55/87	63%	40%-86%
<b>Used Ethambutol for all of the patients<sup>4</sup></b>								
Yes	11	891/1040	88%	84%-93%	11	891/1330	78%	71%-86%
No	9	445/486	92%	88%-95%	9	445/546	81%	73.8%-89%
<b>Used Streptomycin for all of the patients</b>								
Yes	3	46/47	98%	94%-100%	3	46/51	91%	81%-100%
No	20	2585/3103	89%	86%-93%	20	2585/3963	76%	71%-82%
<b>Used Amikacin/Kanamycin for all of the patients<sup>5</sup></b>								
Yes	16	2132/2565	90%	86%-94%	17	2132/3218	78%	72%-85%
No	3	44/50	91%	80%-100%	3	44/68	71%	52%-91 %
<b>Used Capreomycin for all of the patients<sup>5</sup></b>								
Yes	1	22/27	82%	57 %-100%	1	22/41	54%	21%-84%
No	18	2154/2588	90%	86%-94 %	18	2154/3245	79%	73%-84%
<b>Used Ofloxacin/Ciprofloxacin for all of the patients<sup>6</sup></b>								
Yes	14	2233/2718	88%	84%-93%	14	2233/3516	75%	68%-81%
No	2	153/171	89%	78%-99%	2	153/201	78%	63%-93%
<b>Used Levofloxacin for all of the patients<sup>6</sup></b>								
Yes	2	153/171	89%	78%-99%	2	153/201	78%	63%-93%
No	14	2233/2718	88%	84%-93%	14	2233/3516	75%	68%-81%
<b>Used Moxifloxacin for all of the patients (none of the studies used the drug)</b>	-	-	-	-	-	-	-	-

	Success/ Success + Fail + Relapse				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success rates		Cohorts	Events	Pooled Success rates	
			Estimate	95% CI			Estimate	95% CI
<b>Used Cycloserine/Terizidone for all of the patients<sup>7</sup></b>								
Yes	16	978/1093	91%	87%-94%	16	978/1282	78%	72%-84%
No	4	406/480	95%	88%-100%	4	406/660	85%	74%-97%
<b>Used PAS for all of the patients<sup>8</sup></b>								
Yes	2	122/131	92%	83%-94 %	2	122/150	78%	61%-95%
No	20	2498/3007	90%	83%-100%	20	2498/3850	78%	72%-83%
<b>Used Thiamide for all of the patients<sup>9</sup>(all studies used the drug)</b>	-	-	-	-	-	-	-	-
<b>High dose INH used (none of the studies used the drug)<sup>10</sup></b>	-	-	-	-	-	-	-	-

**Abbreviations:** XDR - Extensively drug resistant, CI - Confidential intervals, FQN - Fluoroquinolone, PAS - para-aminosalicylic acid

#### Footnote

<sup>1</sup> Out of 28 cohorts that reported standardized regimen, 23 reported end of treatment outcomes (similar or equal to Laserson's Criteria). All identified XDR cases were excluded from end of treatment outcomes.

<sup>2</sup> No studies reported relapse.

<sup>3</sup> Median (based on all eligible cohorts for this analysis) was used to categorize the variable.

<sup>4</sup> 3 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Two cohorts reported that the used of the drug depended of the drug susceptibility test and the other reported that used "first line drug".

<sup>5</sup> 4 cohorts had no clear information of what second line injectable used, so they were excluded of the analysis.

<sup>6</sup> 7 cohorts had no clear information of what fluoroquinolone was used (if early generation or levofloxacin), all 7 cohorts were excluded from the analysis.

<sup>7</sup> 3 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis.

<sup>8</sup> 1 cohorts had no clear information of how many participants used the drug, so it was excluded from the analysis.

<sup>9</sup> Ethionamide or Prothionamide were analyzed together

<sup>10</sup> No studies reported the use of high dose INH.

Supplemental Table S10. Covariates associated with end of treatment outcomes for patients who received individualized regimens, XDR patients excluded (n=38 cohorts)<sup>1</sup>

Variable	Success/ Success + Fail + Relapse				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success rates		Cohorts	Events	Pooled Success rates	
			Estimate	95% CI			Estimate	95% CI
<b>Any patients with HIV co-infection</b>								
No	20	2025/2545	86%	78%-94%	20	2025/2782	78%	69%-87%
Yes	18	3772/4289	95%	92%-99%	18	3772/4698	82%	75%-90%
<b>Number drugs used in the Initial intensive phase<sup>2</sup></b>								
< 6 drugs	10	1360/1586	92%	85%-98%	10	1360/1698	82%	76%-89%
6 drugs	11	2188/2549	88%	79%-96%	11	2188/2789	76%	69%-83%
> 6 drugs	5	204/279	85%	70%-100%	5	204/301	72%	58%-85%
<b>Duration of the intensive phase<sup>3</sup></b>								
≤ 6 months	4	630/661	96%	93%-98%	4	630/767	80%	77%-83%
> 6 months	3	865/1028	88%	82%-94%	3	865/1135	76%	74%-79%
<b>Age<sup>4</sup></b>								
< 39 years (median)	19	2383/2683	94%	89%-98%	19	2383/3042	80%	72%-89%
≥ 39 years	19	3414/4151	88%	81%-95%	19	3414/4438	79%	71%-89%
<b>% of patients who received Pyrazinamide<sup>5</sup></b>								
< 64.5%	17	3522/4071	91%	85%- 98%	17	3522/4486	81%	72%-90%
≥ 64.5%	17	1831/2148	92%	86%-98%	17	1831/2352	79%	69%-89%
<b>% of patients who received Ethambutol<sup>6</sup> (terciles)</b>								
0%	11	1596/1865	86%	76%-96%	12	1596/2079	77%	65%-89%
0.1 - 49.9%	13	2603/3043	89%	82%-97%	13	2603/3345	78%	67%-89%
≥ 50.0%	11	1267/1431	97%	94%-100%	11	1267/1526	87%	79%-95%
<b>Used Streptomycin for any of the patients<sup>7</sup></b>								
Yes	15	3309/3763	97%	94%-99%	15	3309/4065	88%	82%-94%
No	23	2488/3071	85%	77%-92%	23	2488/3415	73%	65%-82%
<b>% of patients who received Amikacin or Kanamycin<sup>8</sup> (median)</b>								
< 55.3%	12	2776/3300	87%	76%-98%	13	2776/3501	80%	69%-91%
≥ 55.3%	12	1762/1962	97%	92%-99%	13	1762/2236	81%	71%-92%
<b>% of patients who received Capreomycin<sup>8</sup> (median)</b>								
< 24.4%	12	2488/2840	96%	91%-100%	12	2488/3089	85%	78%-94%
≥ 24.4%	12	2050/2422	89%	79%-99 %	12	2050/2648	74%	61%-87%
<b>Used Ofloxacin/Ciprofloxacin for any of the patients<sup>9</sup></b>								
Yes	19	4341/4979	95%	91%-99%	19	4341/5414	84%	77%-90%
No	11	808/978	88%	73%-98%	11	808/1104	76%	65%-87%
<b>Used Levofloxacin for any of the patients<sup>10</sup></b>								
Yes	14	2488/2878	94%	88%-99%	14	2488/3148	82%	75%-91%
No	14	2357/2729	91%	83%-98%	14	2357/2956	80%	72%-89%

Variable	Success/ Success + Fail + Relapse				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success rates		Cohorts	Events	Pooled Success rates	
			Estimate	95% CI			Estimate	95% CI
<b>Used Moxifloxacin for any of the patients<sup>10</sup></b>								
Yes	16	3303/3840	92%	85%-99%	16	3303/4166	82%	74%-90%
No	12	1542/1767	92%	85%-99%	12	1542/1938	80%	71%-90%
<b>% of patients who received any Later FQN<sup>11</sup> (median)</b>								
< 66.7%	17	3752/4393	91%	84%-97%	17	3752/4812	79%	71%-87%
≥ 66.7%	15	1529/1742	91%	85%-98%	15	1529/1903	82%	74%-90%
<b>% of patients who received Cycloserine /terizidone<sup>12</sup></b>								
< 21%	10	1563/1999	81%	67%-96%	10	1563/2163	75%	62%-89%
21.1% - 69.8%	7	716/748	96%	92%-100%	7	716/776	90%	82%-98%
≥ 69.9%	16	3050/3444	93%	88%-98%	16	3050/3858	78%	68%-88%
<b>% of patients who received thiamide<sup>13</sup></b>								
< 50.0%	8	970/1232	85%	71 %-99%	8	970/1355	78%	65%-91%
50.1% - 79.9%	9	2582/2868	97%	94%-100%	9	2582/3090	90%	83%-97%
≥ 80.0%	16	1777/2091	90%	83%-97%	16	1777/2352	74%	64%-85%
<b>% of patients who received PAS<sup>14</sup> (median)</b>								
<50.0%	16	1522/1658	94%	89%-99%	16	1522/1825	86%	79%-93%
≥50.0%	17	3807/4533	89%	82%-97%	17	3807/4972	74%	63%-84%
<b>Used high dose INH for any of the patients<sup>15</sup></b>	-	-	-	-	-	-	-	-
<b>Used Bedaquiline (only one study used)<sup>16</sup></b>								

**Abbreviations:** XDR - Extensively drug resistant, CI - Confidential intervals, FQN - Fluoroquinolone, PAS - para-aminosalicylic acid, INH - Isoniazid

**Footnote**

<sup>1</sup> Out of 56 cohorts that reported individualized regimen, 41 reported end of treatment outcomes (similar or equal to Laserson's criteria), and other 3 cohorts were excluded because only reported XDR cases. All identified XDR cases were excluded from analysis of end of treatment outcomes.

<sup>2</sup> Information was missing in 12 cohorts, so they were excluded from the analysis

<sup>3</sup> Out of the 38 cohorts, only 7 cohorts reported duration of intensive phase. Median (based on all eligible cohorts for this analysis) was used to categorize the variable.

<sup>4</sup> Median (based on all eligible cohorts for this analysis) was used to categorize the variable.

<sup>5</sup> 4 studies had no clear information of how many participants used the drug, so they were excluded from the analysis. Median was used to categorize the variable.

<sup>6</sup> 3 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. The strata were defined using three major clusters.

<sup>7</sup> The strata were defined using the 2 major clusters: "used" vs. "not used".

<sup>8</sup> 14 cohorts had no clear information of what second line injectable used, so they were excluded from the analysis. The strata were defined observing two major clusters.

<sup>9</sup> 8 cohorts had information missing: in 5 cohorts it was not clear which quinolone generation (early or later generation) was used and in 3 cohorts it was not clear how many participants used ciprofloxacin or ofloxacin. All 8 cohorts were excluded from the analysis. The strata were defined using the 2 major clusters: "used" vs. "not used".

<sup>10</sup> 10 cohorts had information missing: in 5 cohorts it was not clear which quinolone generation (early or later generation) was used, in 4 cohorts it was not clear not clear what later generation was used levofloxacin or moxifloxacin and in 1 cohort it was not clear how many participants used the drug. All 10 cohorts were excluded from the analysis.

<sup>11</sup> 6 cohorts had information missing: in 5 cohorts it was not clear which quinolone generation (early or later generation) and in 1 cohort it was not clear how many participants used the drug. All 6 cohorts were excluded from the analysis. The strata were defined using two major clusters

<sup>12</sup> 5 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Three major strata were used to categorize the variable.

<sup>13</sup> 5 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Ethionamide and prothionamide analyzed together. Three major strata were used to categorize the variable.

<sup>14</sup> 5 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Two major strata used to categorize the variable.

<sup>15</sup> No studies reported the use of high dose INH.

<sup>16</sup> Only one study reported use of bedaquiline and reported end of treatment outcomes.

Supplemental Table S11. Covariates associated with end of treatment outcomes for XDR patients (n=15 cohorts)<sup>1</sup>

Variable	Success/ Success + Fail + Relapse				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success		Cohorts	Events	Pooled Success	
			Estimate	95% CI			Estimate	95% CI
<b>Any patients with HIV co-infection</b>								
No	7	82/258	39%	16%-63%	7	82/286	30%	13%-47%
Yes	8	111/208	65%	44%-86%	8	111/346	42%	24%-61%
<b>Number drugs used in the Initial intensive phase<sup>2</sup></b>								
≤ 5 drugs	4	27/55	62%	30%-95%	4	27/78	42%	15%-68%
6 drugs	6	105/172	55%	15%-98%	6	105/255	50%	17%-84%
> 6 drugs	2	24/55	46%	11%-82%	2	24/104	32%	3%-59%
<b>Duration of intensive phase<sup>3</sup></b>								
6 months	2	10/15	65%	42%-89%	2	10/18	60%	24%-95%
> 6 months	3	17/43	-	-	3	17/69	15%	0%-42%
<b>Age<sup>4</sup> (median)</b>								
≤ 40.87	8	82/166	58%	35%-81%	8	82/283	42%	23%-62%
> 40.87	7	111/300	50%	24%-76%	7	111/349	31%	14%-48%
<b>% Of patients who received Pyrazinamide<sup>5</sup> (median)</b>								
≤ 83.8%	6	60/140	43%	23%-63%	6	60/213	31%	16%-46%
>83.8%	7	106/171	69%	52%-85%	7	106/253	47%	30%-63%
<b>Used Ethambutol for any of the patients<sup>6</sup></b>								
No	6	81/129	66%	47%-86%	6	81/164	45%	29%-61%
Yes	7	90/189	54%	36%-73	7	90/306	38%	23%-53%
<b>Used Streptomycin for any of the patients</b>								
No	11	140/343	55%	34%-75%	11	140/440	36%	22%-51%
Yes	4	53/123	53%	21%-85%	4	53/192	37%	14%-61%
<b>% of patients who received Amikacin/Kanamycin<sup>7</sup></b>								
≤ 30.7%	4	56/124	40%	22%-59%	4	56/227	25%	16%-33%
30.8% - 50.9%	3	30/59	49%	34%-64%	3	30/63	51%	32%-70%
≥ 60%	3	27/56	45%	31%-58%	3	27/76	39%	21%-57%
<b>% of patients who received Capreomycin patients (median used)<sup>8</sup></b>								
≤ 36.5%	5	48/104	42%	32%-51%	5	48/127	43%	26%-60%
> 36.5%	5	65/135	48%	40%-56%	5	65/239	31%	17%-46%
<b>% of patients who received Ofloxacin/ Ciprofloxacin<sup>9</sup> (median)</b>								
≤ 29.9%	5	85/153	54%	47%-62%	5	85/209	48%	30%-66%
> 29.9%	5	62/139	42%	34%-50%	5	62/212	36%	19%-52%
<b>% of patients who received Levofloxacin (median)<sup>10,11</sup></b>								
≤29.9%	5	70/145	-	-	5	70/249	34%	19%-50%
>29.9%	4	43/94	-	-	4	43/114	46%	25%-66%

Variable	Success/ Success + Fail + Relapse				Success/ Success + Fail + Relapse + Death			
	Cohorts	Events	Pooled Success		Cohorts	Events	Pooled Success	
			Estimate	95% CI			Estimate	95% CI
<b>% of patients who received Moxifloxacin (median)<sup>10,11</sup></b>								
≤ 20.3%	5	67/138	-	-	5	67/196	40%	23%-58%
> 20.3%	4	46/101	-	-	4	46/167	39%	17%-60%
<b>% of patients who received any Later FQN % (median)<sup>12</sup></b>								
≤25.2%	5	70/145	49%	39%-60%	5	70/249	34%	19%-49%
>25.2%	5	77/147	53%	42%-63%	5	77/172	49%	32%-66%
<b>Used Cycloserine for any of the patients<sup>13</sup></b>								
No	5	73/145	48%	26%-70%	5	73/170	43%	26%-60%
Yes	8	98/173	68%	50%-87%	8	98/300	41%	26%-55%
<b>% Of patients who received Thiamide<sup>14</sup></b>								
≤ 63.5%	3	20/43	57%	23%-91%	3	20/46	52%	24%-80%
63.6 - 80.6%	5	83/160	58%	37%-80%	5	83/250	36%	22%-51%
≥ 80.7%	5	69/115	63%	39%-87%	5	69/174	41%	25%-62%
<b>% Of patients who received PAS<sup>14</sup></b>								
≤ 51.2%	4	18/31	59%	32%-86%	4		54%	30%-78%
51.3% - 60.8%	4	54/122	51%	23%-74%	4		42%	24%-61%
≥ 60.9%	5	99/165	67%	47%-87%	5		35%	20%-50%
<b>Used high dose INH for any of the patients<sup>15</sup></b>	-	-	-	-	-	-	-	-

**Abbreviations:** XDR - Extensively drug resistant, CI - Confidential intervals, FQN - Fluoroquinolone, PAS - para-aminosalicylic acid

#### Footnote

<sup>1</sup> 7 studies (7 cohorts) reported only XDR patients, of which 3 reported end of treatment outcomes. Another 12 studies reported end of treatment outcomes stratified by resistant pattern (XDR were separated from MDR). For the pooled end of treatment analysis, we combined the results from the 3 cohorts of only XDR patients and the 12 cohorts of XDR patients from the studies that reported stratified results.

<sup>2</sup> Information was missing in 3 cohorts, so they were excluded from the analysis.

<sup>3</sup> Out of the 15 cohorts, only 5 cohorts reported duration of intensive phase.

<sup>4</sup> Median (based on all eligible cohorts for this analysis) was used to categorize the variable

<sup>5</sup> 2 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Median was used to categorize the variable.

<sup>6</sup> 2 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. The strata were defined using the 2 major clusters: "used" vs. "not used".

<sup>7</sup> 5 cohorts had no clear information of what second line injectable used, so they were excluded of the analysis. The strata were defined using three major clusters.

<sup>8</sup> 5 cohorts had no clear information of what second line injectable used, so they were excluded of the analysis. Median was used to categorize the variable.

<sup>9</sup> 5 cohorts had information missing: in four cohorts it was not clear which quinolone generation (early or later generation) was used and in one cohort it was not clear how many participants used ciprofloxacin or ofloxacin. All 5 cohorts were excluded from the analysis.

<sup>10</sup> 6 cohorts had information missing: in 4 cohorts it was not clear what fluoroquinolone (early or later generation) was used, in one cohort not clear not clear what later generation used the drug (levofloxacin or moxifloxacin) and in one cohort not clear how many participants used the drug. All 6 cohorts were excluded from the analysis. Median was used to categorize the variable.

<sup>11</sup> Did not converge, the analysis of fail/relapse.

<sup>12</sup> 5 cohorts had information missing: in four cohorts it was not clear which quinolone generation (early or later generation) was used and in one cohort it was not clear how many participants used the drug. All 5 cohorts were excluded from the analysis. Median was used to categorize the variable

<sup>13</sup> 2 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. The strata were defined using the 2 major clusters: "used" vs. "not used".

<sup>14</sup> 2 cohorts had no clear information of how many participants used the drug, so they were excluded from the analysis. Three major strata was used to categorize the variable.

<sup>15</sup> No studies that reported end of treatment outcomes used high dose INH.