

Online Supplementary Table S3: Characteristics of important studies from India showing bacteriological response and outcome of multidrug-resistant tuberculosis

Author (study year)	Location	Study period	Total number of enrolled MDR-TB cases	Type of regimen used	HIV positive (%)	Culture sensitivity pattern	Bacteriological response (culture→smear conversion)	Outcome of treatment for MDR-TB
Subhash <i>et al.</i> , 2003 ^[1]	Vellore, Tamil Nadu	1997-1999	100	Individualized	2/28 (7) (tested for HIV - 28)	RIF+INH - 100% EMB - 66% STM - 69% CS - 11% ETO - 17% CFX - 22%	Smear available - 49/55 (89.1%) Smear conversion - 26/49 (53.1%) Culture available - 26/55 (47.3%) Culture conversion - 16/26 (61.5%)	Responders - 26/55 (47.3%) Failure - 23/55 (41.8%) Defaulted - 45/100 (45%)
Prasad <i>et al.</i> , 2006 ^[2]	Lucknow, Uttar Pradesh	February 1998-October 2002	46	Individualized		RIF+INH - 8 RIF+INH+1 drug - 21 RIF+INH+2 drugs - 17	Smear and culture Conversion - 29/39 (74.3%) Mean - 4.4 months	Cured - 29 (74.3%) Died - 2 (5.1%) Defaulted - 6 (20.6%) Failure - 2 (5.1%) Among cured ones Relapse - 2/29 (6.9%) Defaulted - 4/29 (13.8%) Remained
Arora <i>et al.</i> , 2007 ^[3]	New Delhi	January 2002-March 2005	66	Standardized		RIF+INH only - 23 (34.8%) RIF+INH+1 drug - 23 (34.8%) RIF+INH+two drugs - 17 (25.8%) RIF+INH+three drugs - 3 (4.5%)	53 (80.9%) culture conversion within 9 months Among 53 patients 3 months - 77.4% 6 months - 92.5% Mean smear conversion - 2.3 months	smear -ve - 23/29 (79.3%) Estimated for 52 patients Cured - 36 (69.2%) Defaulted - 6 (11.5%) Died - 6 (11.5%) Treatment failure - 4 (7.7%) Cured - 13 (48.1%) Defaulted - 10 (37.1%) Died - 1 (3.7%) Still on treatment - 1 (3.7%) Referred for surgery - 2 (7.4%)
Dhingra <i>et al.</i> , 2008 ^[4]	New Delhi	August 2002-December 2004	27	Individualized	2	RIF+INH - 8 RIF+INH+1 drug - 9 RIF+INH+2 drugs - 5 RIF+INH + ≥ 3 drugs - 5	Smear conversion at 3 months - 23/25 (92%) Culture conversion 3 months - 16/25 (64%)	Cured - 25 (37.8%) Failure - 17 (25.7%) Defaulted - 16 (24.3%) Died - 8 (12.2%)
Thomas <i>et al.</i> , 2007 ^[5]	Chennai, Tamil Nadu	May 1999-December 2003	66	Individualized		RIF+INH - 12 (18%) RIF+INH+1 drug - 26 RIF+INH+2 drugs - 20 RIF+INH+3 drugs - 6 RIF+INH + > 3 drugs - 2 XDR-TB - 1	100 (79%) culture conversion within 8 months 3 months - 82% 6 months - 98%	Cured - 76 (61%) Defaulted - 22 (17%) Died - 24 (19%) Treatment failure - 4 (3%) Cured - 64.5% Relapse - 12.9% Failure - 19.4%
Singla <i>et al.</i> , 2009 ^[6]	New Delhi	January 2002-December 2006	126	Standardized		RIF+INH only - 50 (40%) RIF+INH+1 drug - 41 (33%) RIF+INH+2 drugs - 25 (20%) RIF+INH+3 drugs - 10 (8%)		
Jana <i>et al.</i> , 2009 ^[7]	West Bengal	January 2003 -January 2008	31	Individualized				

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Datta <i>et al.</i> , 2009 ^[8]	Srinagar, Jammu and Kashmir	March 2003-February 2007	52	Individualized		RIF+INH only - 7 (13.4%) RIF+INH+1 drug - 16 (30.8%) RIF+INH+2 drugs - 16 (30.8%) RIF+INH+3 drugs - 5 (9.6%) RIF+INH + > 3 drugs - 8 (15.4%)	Smear conversion 3 months - 30 (57.7%) 6 months - 44 (84.6%) Culture conversion 3 months - 23 (44.1%) 6 months - 44 (84.6%)	Cured - 37 (77.1%) Died - 11 (21.1%) Defaulted - 4 (7.6%) Failure - 8 (15.3%) (All XDR-TB)
Joseph <i>et al.</i> , 2011 ^[9]	Tamil Nadu	Jane 2006-September 2007	38	Standardized		RIF+INH only - 3 RIF+INH+1 drug - 15 RIF+INH+2 drugs - 15 RIF+INH+3 drugs - 4 RIF+INH+4 drugs - 1 OFX - 5 KM - 1 ETO - 12	Smear 3 months - 33 (87%) 6 months - 33 (87%) Culture 3 months - 32 (84%) 6 months - 33 (87%) Culture conversion - 82% in 2 months or less	Cured - 25 (65.8%) Defaulted - 5 (13.2%) Died - 3 (7.9%) Treatment failure - 5 (13.2%) XDR-TB among treatment failures- 2/5 (40%)
Isaakidis <i>et al.</i> , 2011 ^[10]	Mumbai, Maharashtra	May 2007-May 2011	58	Individualized or Standardized	100	MDR-TB suspect - 13 Pure MDR (RIF+INH) - 2 RIF+INH+other FLD - 15 RIF+INH+SLD - 26 XDR-TB - 2	Baseline smear positive - 25 Smear conversion at 4 months - 13/25 (52%) Baseline culture positive - 44 Culture conversion at 4 months - 23/44 (52%)	Cured - 8 (14%) Completed treatment - 5 (9%) Died - 13 (22%) Defaulted - 7 (12%) Failure - 2 (3%) Still on treatment - 23 (40%)
Nagaraja <i>et al.</i> , 2012 ^[11]	Bengaluru, Karnataka	January 2005-December 2008	224	Individualized	5	STM+RIF+INH+EMB - 146 (65.2%) STM+RIF+INH - 39 (17.4%) RIF+INH+EMB - 19 (8.5%) RIF+INH - 20 (8.9%) STM+RIF+INH+EMB- 12 (5.7%) STM+RIF+INH - 4 (1.9%) RIF+INH+EMB - 2 (3.2%) RIF+INH - 3 (1.3%)	SRHE - 40.3 SRH - 48.2 RHE - 51.3 RH - 55 Smear conversion at 3 months - 32/48 (66.7%) Mean smear conversion - 4.2±2.1 months Culture conversion at 3 months - 27/48 (57.3%) Mean culture conversion - 4.3±2.4 months Average - 7.8 (3-11) months	Cured - 145 (64.7%) Treatment failure - 5 (2.2%) Died - 10 (4.4%) Defaulted - 64 (28.5%) Treatment completed - 23 Cured - 9/23 (39.2%) Still on treatment - 28 Failure - 3 OFX - 2/XDR-TB - 1 Defaulted - 10 Died - 13
Kapadia and Tripathi, 2013 ^[12]	Ahmedabad, Gujarat	August 2007-June 2012	63	Standardized	2 (3.2)	Line probe assay RIF+INH - 37 (90.3%) RIF only - 5 (9.7%)	Mono-resistant - 3 (11%) MDR-TB with EMB/PZA/EMB, PZA - 20 (69%) Pure MDR-TB - 4 XDR-TB - 1 Resistance to at least one SLD - 13 (44.8%) RIF+INH - 100% EMB - 7/9 (78%) FQ - 6/8 (75%) Injectable - 1/8 (13%)	Cured - 14 (51%) Died - 5 (18%) Failure - 2 (7%) Defaulted - 5 (18%) Migrated - 1 Still on treatment - 2 Cured - 1 Still on treatment - 3 Died - 4 (36.5%) Defaulted - 3 (27%)
Dholakia and Shah, 2013 ^[13]	Mumbai, Maharashtra	August 2006-November 2010	29	Individualized	3			
Isaakidis <i>et al.</i> , 2013 ^[14]	Mumbai, Maharashtra	July 2007-January 2013	11	Individualized + standardized	100			

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Author (study year)	Location	Study period	Total number of enrolled MDR-TB cases	Type of regimen used	HIV positive (%)	Culture sensitivity pattern	Bacteriological response (culture±smear conversion)	Outcome of treatment for MDR-TB
Jain <i>et al.</i> , 2014 ^[15]	Ahmedabad, Gujarat	January 2009-December 2009	130	Standardized		STM, RIF, INH, EMB - 61 (47%) STM, RIF, INH/RIF, INH, EMB - 14 (10%) STM, RIF/RIF, INH - 49 (38%), RIF - 6 (5%)	89 (68%) within 9 months 3 months - 73 (82%) 6 months - 84 (94%)	Cured - 51 (39%) Treatment completed - 7 (5%) Failure - 17 (13%) Defaulted - 30 (23%) Died - 25 (19%) Cured - 53 (68%) Failure - 12 (15%) Defaulted - 13 (16%)
Udwadia and Mohari, 2014 ^[16]	Mumbai, Maharashtra	May 2006-May 2010	78	Individualized		RIF, INH - 100% STM - 74.4% EMB - 51.3% PZA - 15.4% OFX - 43.6% PAS - 24.4% KM - 17.9% ETO - 32.1%		
Kapadia and Tripathi, 2014 ^[17]	Ahmedabad, Gujarat	August 2007-March 2010	66	Standardized	1 (1.5)	STM, RIF, INH, EMB - 31 (63.3%) STM, RIF, INH - 9 (18.4%) RIF, INH, EMB - 2 (4.3%) RIF, INH - 7 (14.3%) Line Probe Assay RIF, INH - 13 (76.5%) RIF only - 4 (23.5%) RIF, INH - 86 (74.8%) RIF alone - 29 (25.2%)	Mean smear conversion - 4.2±2.2 months mean culture conversion - 4.3±2.5 months	Cured - 25 (37.87%) Failure - 4 (6.1%) OFX - 2/XDR-TB - 2 Defaulted - 17 (25.75%) Died - 17 (25.75%)
Yadav <i>et al.</i> , 2016 ^[18]	Jaipur, Rajasthan	2012	115	Standardized		Line Probe Assay RIF, INH - 13 (76.5%) RIF only - 4 (23.5%) RIF, INH - 86 (74.8%) RIF alone - 29 (25.2%)	3 months - 68 (59.1%) 6 months - 68.4%	Treatment completed - 3 (4.54%) Cure - 63.5% Failure - 9.6% Defaulted - 15.7% Died - 11.3% Cured- 48 (33.1%)
Patel <i>et al.</i> , 2016 ^[19]	Vadodara, Gujarat (Western India)	March 2010-January 2013	145	Standardized	2	STM, RIF, INH, EMB - 87 (60%) STM, RIF, INH - 29 (20%) RIF, INH - 18 (12.4%) STM, RIF - 2 RIF, INH, EMB - 6 (4.1%) RIF, EMB - 1 RIF - 1		Treatment completed - 8 (5.5%) Treatment failure - 9 (6.2%) Died - 43 (29.7%) Defaulted - 32 (21.1%) Transferred - 3 (2.1%) Switched to CAT V - 1 Still on treatment (30 months) - 4 (2.8%) Compliance to treatment- 81 (55.9%) Conventional DST Cured - 31 (23%) Treatment completed - 9 (7%) Died - 24 (18%) Failure - 5 (4%)
Nair <i>et al.</i> , 2016 ^[20]	Tamil Nadu	Conventional DST September 2010-September 2011 Rapid diagnostic September 2012-September 2013	Conventional DST - 135 Rapid diagnostic- 389	Standardized	Only among rapid diagnostic group - 18 (5)	Conventional DST RIF, INH - 127 (94%) RIF only - 7 (5%) Rapid diagnostic RIF, INH - 216 (56%) RIF only - 169 (43%)	Conventional DST 6 months - 69 (51%) Rapid diagnostic 6 months - 208 (54%)	

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Author (study year)	Location	Study period	Total number of enrolled MDR-TB cases	Type of regimen used	HIV positive (%)	Culture sensitivity pattern	Bacteriological response (culture+smear conversion)	Outcome of treatment for MDR-TB
Neeta <i>et al.</i> , 2016 ⁽²¹⁾	Bellary, Karnataka	December 2012-April 2013	43	Standardized		RIF, INH- 33 (76.7%) RIF- 10 (23.3%)	6 months - 20 (45.5%) 12 months - 34.9%	Loss to follow-up - 45 (33%) Transfer out - 2 (2%) Switched to XDR-TB treatment - 0 (0.0%) Stopped due to reasons other than ADR - 0 (0.0%) Missing data - 19 (13%) Rapid diagnostic Cured - 110 (28%) Treatment completed - 50 (13%) Died - 75 (20%) Failure - 1 (0.3%) Loss to follow-up - 120 (31%) Transfer out - 13 (3%) Switched to XDR-TB treatment - 7 (2%) Stopped due to reasons other than ADR - 1 (0.3%) Missing data - 12 (3%) Cured-9 (44.2%) Defaulted - 12 Died - 9 Failure - 1 XDR-TB evaluation - 2 Cured - 39 (27%)
Dole <i>et al.</i> , 2017 ⁽²²⁾	Solapur (Western Maharashtra)	September 2012-December 2014	146	Standardized	6		130 (89%) within 3 months	Treatment completed - 45 (31%) Died - 20 (14%) Defaulted - 28 (19%) Failure (Switch to CAT-V) - 14 (9%) Cured - 828 (20.6%) Treatment completed - 340 (8.4%) Died - 857 (21.3%) Lost to follow-up - 768 (19.1%) Failure - 98 (2.4%) Switched to CAT V treatment for XDR-TB - 190 (4.7%) Still on treatment - 239 (5.9%)
Suryawanshi <i>et al.</i> , 2017 ⁽²³⁾	Maharashtra	January 2011-December 2012	4024	Standardized	138 (3.4)			

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Janmeja <i>et al.</i> , 2017 ^[24]	Chandigarh, Punjab	January 2012-December 2014	140	Standardized	4 (2.7)		3 months - 98 (70%) 6 months - 112 (81.4%)	Cure - 77 (55%) Treatment completed - 11 (7.8%) Died - 23 (16.4%) Defaulted - 13 (9.2%) Failure - 5 (3.5%) Switched to CAT V (XDR-TB) - 11 (7.8%)
Waghmare <i>et al.</i> , 2017 ^[25]	Mumbai, Maharashtra	August 2012 - December 2013	194	Standardized Individualized in cases of Pre-XDR and XDR-TB	8.8	MDR-TB - 59 (30.4%) MDR TB with additional FQ resistance (pre-XDR [FQ]) - 124 (64%) MDR TB with additional AM resistance (pre-XDR [AM]) - 11 (5.6%) XDR TB - 10 (5.1%)	Available for 133/194 3 months - 92 (69%) 6-11 months- 125 (93.9%)	Cured - 68 Treatment completed - 26 Failure - 22 (11.3%) Died - 39 (20.15%) Defaulted - 23 (11.8%) Treatment completed with outcomes unknown - 26 (13.4%) Transferred out - 13 (6.7%) Treatment stopped due to ADRs - 3 (1.5%)
Parmar <i>et al.</i> , 2018 ^[26]	7 states of India	August 2007-March 2011	3712	Standardized	58 (1.6)	RIF only - 187 (5.0%) RIF, INH only - 1058 (28.5%) RIF, INH combination - 2407 (64.8%) RIF combination - 50 (1.4%) Gujarat sub-group OFX resistance - 62 (59.6%) KM resistance - 8 (7.7%) ETO resistance - 28 (26.9%) XDR-TB - 6 (5.8%)	2735 (73.6%) Median time- 100 days	Outcome defined for 2264/3712 (60.9%) Cured - 781/2264 (34.5%) Died - 644/2264 (28.4%) Lost to follow up - 670/2264 (29.6%) Treatment failure or changed to XDR-TB treatment - 169/2264 (7.5%) Still on treatment - 1448/3712 (39%) Cured - 415 (52%) Treatment completed - 23 (3%) Default - 199 (24%) Died - 130 (16%) Switched to CAT V - 27 (3%) Transferred out - 12 (1%) Treatment failure - 13 (1%)
Gupta and Jorwal, 2018 ^[27]	New Delhi	2009-2013	819	Standardized	18 (2.2)	RIF and INH- 100% EMB - 167 (58%) STM - 222 (76.8%) OFX - 45 (78.9%) KM - 9 (69.2%)		

MDR-TB: Multidrug-resistant tuberculosis, RIF: Rifampin, INH: Isoniazid, EMB: Ethambutol, PZA: Pyrazinamide, STM: Streptomycin, CS: Cycloserine, ETO: Ethionamide, OFX: Ofloxacin, XDR: Extensively drug-resistant, CAT V: Category V, DST: Drug sensitivity testing, ADR: Adverse drug reaction, FQ: Fluoroquinolone, AM: Amikacin, KM: Kanamycin

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