Table S1: Search strategy

Databases	Search strategy
PubMed	(((((TB[Title] OR tuberculosis[Title] OR Mycobacterium tuberculosis[Title] OR anti-tuberculosis[Title] OR anti-tubercular)[Title])) AND ((isoniazid[Title] OR rifampin [Title] OR rifampicin [Title] OR rifamycin [Title] OR ethambutol [Title] OR pyrazinamide[Title] OR streptomycin[Title] OR amikacin[Title] OR kanamycin[Title] OR capreomycin[Title] OR viomycin[Title] OR enviomycin[Title] OR Ciprofloxacin[Title] OR Levofloxacin[Title] OR Moxifloxacin[Title] OR ethionamide[Title] OR prothionamide [Title] OR seromycin[Title] OR Terizidone[Title] OR Rifabutin[Title] OR clarithromycin[Title] OR Linezolid[Title] OR thioacetazone[Title] OR Bedaquiline[Title] OR Clofazimine[Title] OR rifapentine[Title] OR resistance*[Title] OR resistant*[Title] OR susceptibilit*[Title] OR sensitivit*)[Title])) AND (((Bangladesh[Affiliation]) OR (Bangladesh[Title/Abstract] OR Dhaka[Title/Abstract] OR Chittagong[Title/Abstract] OR Chattogram[Title/Abstract] OR Rajshahi[Title/Abstract] OR Rangpur[Title/Abstract] OR Barisal[Title/Abstract] OR Barishal[Title/Abstract] OR Sylhet[Title/Abstract] OR Khulna[Title/Abstract] OR Mymensingh[Title/Abstract] OR Dinajpur[Title/Abstract] OR Bogra[Title/Abstract] OR Bogura[Title/Abstract] OR Comilla[Title/Abstract] OR Cumilla[Title/Abstract] OR Faridpur[Title/Abstract] OR Pabna[Title/Abstract] OR Noakhali[Title/Abstract] OR "Cox's Bazar"[Title/Abstract] OR Jessore[Title/Abstract] OR Jashore[Title/Abstract] OR Satkhira[Title/Abstract] OR Gazipur[Title/Abstract] OR Kushtia[Title/Abstract] OR Sirajganj[Title/Abstract] OR Gopalganj[Title/Abstract] OR Jamalpur[Title/Abstract] OR Gazipur[Title/Abstract] OR Tangail[Title/Abstract] OR Manikganj[Title/Abstract] OR Patuakhali[Title/Abstract] OR Rangamati[Title/Abstract] OR Chandpur[Title/Abstract] OR Netrakona[Title/Abstract] OR Magura[Title/Abstract] OR Naogaon[Title/Abstract] OR Nilphamari)[Title/Abstract]))
Scopus	TITLE(TB OR tuberculosis OR "Mycobacterium tuberculosis" OR anti-tuberculosis OR anti-tubercular) AND TITLE(isoniazid OR rifampin OR rifampicin OR rifamycin OR ethambutol OR pyrazinamide OR streptomycin OR amikacin OR kanamycin OR capreomycin OR viomycin OR enviomycin OR Ciprofloxacin OR Levofloxacin OR Moxifloxacin OR ethionamide OR prothionamide OR seromycin OR Terizidone OR Rifabutin OR clarithromycin OR Linezolid OR thioacetazone OR Bedaquiline OR Clofazimine OR rifapentine OR resistance* OR resistant* OR susceptibilit* OR sensitivit*) AND AFFIL(Bangladesh) OR TITLE(Bangladesh OR Dhaka OR Chittagong OR Chattogram OR Rajshahi OR Rangpur OR Barisal OR Barishal OR Sylhet OR Khulna OR Mymensingh OR Dinajpur OR Bogra OR Bogura OR Comilla OR Cumilla OR Faridpur OR Pabna OR Noakhali OR "Cox's Bazar" OR Jessore OR Jashore OR Satkhira OR Gazipur OR Kushtia OR Sirajganj OR Gopalganj OR Jamalpur OR Gazipur OR Tangail OR Manikganj OR Patuakhali OR Rangamati OR Chandpur OR Netrakona OR Magura OR Naogaon OR Nilphamari)
Google Scholar	allintitle: (TB OR tuberculosis OR "Mycobacterium tuberculosis" OR anti-tuberculosis OR anti-tubercular) (Bangladesh OR Dhaka OR Chittagong OR Chattogram OR Rajshahi OR Rangpur OR Barisal OR Barishal OR Sylhet OR Khulna OR Mymensingh OR Dinajpur OR Bogra OR Comilla OR Cumilla OR Faridpur OR Pabna OR Noakhali OR "Cox's Bazar" OR Jessore OR Jashore OR Satkhira OR Gazipur OR Kushtia OR Sirajganj OR Gopalganj OR Jamalpur OR Gazipur OR Tangail OR Manikganj OR Patuakhali OR Rangamati OR Chandpur OR Netrakona OR Magura OR Naogaon OR Nilphamari)

Table S2: Quality assessment of the included cross-sectional studies

No	Study ID	JBI critical appraisal tool								Yes (%)
		1	2	3	4	5	6	7	8	
1	Aurin 2014	Y	Y	Y	Y	N	N	N	N	50.0
2	Banu 2010	Y	Y	Y	Y	Y	Y	Y	Y	100.0
3	Banu 2012	Y	Y	Y	Y	Y	Y	Y	Y	100.0
4	Banu 2013	Y	Y	Y	Y	Y	Y	Y	Y	100.0
5	Banu 2017	Y	Y	Y	Y	Y	Y	Y	Y	100.0
6	Hussain 2005	Y	Y	Y	N	N	N	Y	N	50.0
7	Iqbal 2013	Y	Y	U	Y	N	N	U	N	37.5
8	Kamal 2015	Y	Y	Y	Y	Y	Y	Y	Y	100.0
9	Khatun 2017	Y	Y	Y	Y	N	N	Y	N	62.5
10	Mohiuddin 2014	Y	Y	Y	Y	N	N	Y	N	62.5
11	Mottalib 2011	Y	Y	Y	Y	N	N	Y	N	62.5
12	Noor 2012	Y	Y	Y	Y	N	N	Y	N	62.5
13	Noor 2013	Y	Y	Y	Y	N	N	Y	N	62.5
14	Rahman 2009	Y	Y	Y	Y	N	N	U	U	50.0
15	Storla 2007	Y	Y	Y	Y	N	N	Y	N	62.5
16	Uddin 2018	Y	Y	Y	Y	N	N	Y	Y	75.0
17	Van Deun 1999	Y	Y	Y	Y	N	N	Y	N	62.5
18	Wadud 2009	Y	Y	Y	Y	N	N	Y	N	62.5
19	Zaman 2005	Y	Y	Y	Y	Y	Y	Y	Y	100.0
20	Zignol 2016	Y	Y	Y	Y	U	Y	Y	Y	87.5

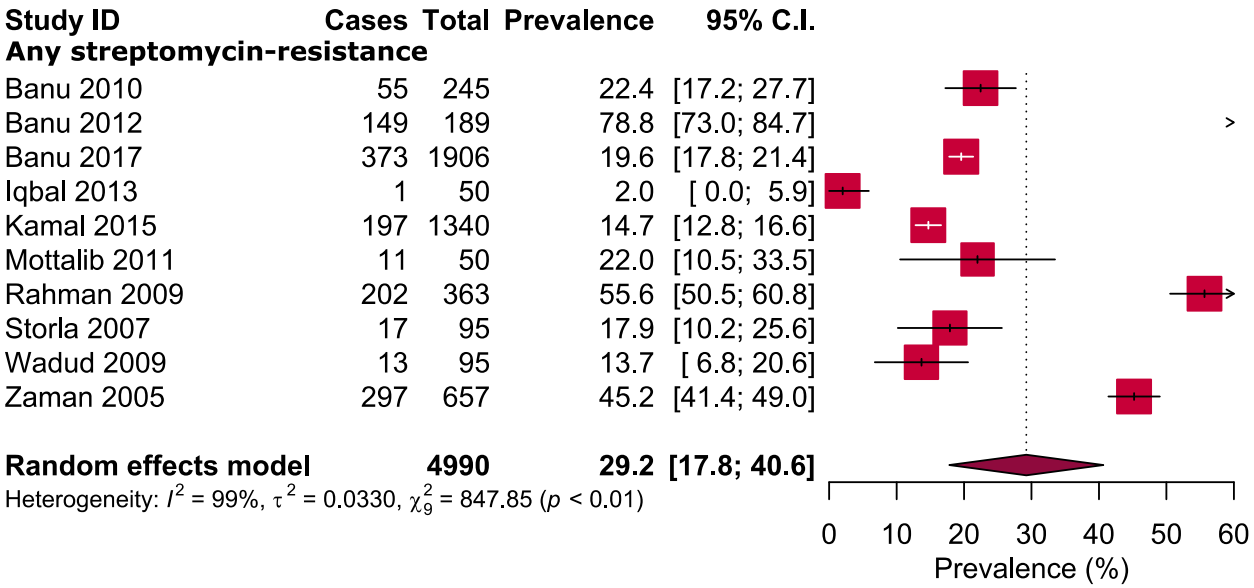
JBI: Joanna Briggs Institute, Y: Yes, N: No, U: Unclear.

Table S3: Quality assessment of the included cohort studies

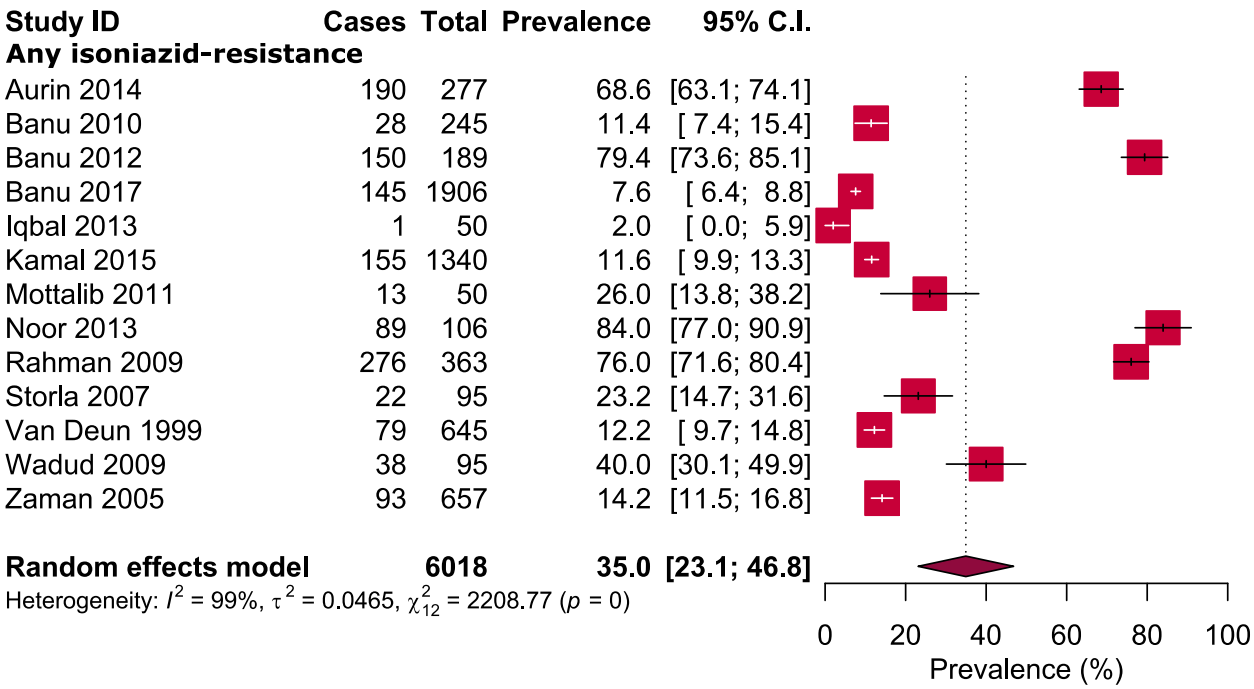
No	Study ID	JBI critical appraisal tool											Yes (%)
		1	2	3	4	5	6	7	8	9	10	11	
1	Afroz 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	90.9
2	Aung 2014	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	81.8
3	Heysell 2015	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	90.9
4	Van Deun 2010	Y	Y	Y	N	N	Y	N	Y	N	N	Y	54.5

JBI: Joanna Briggs Institute, Y: Yes, N: No, NA: Not applicable.

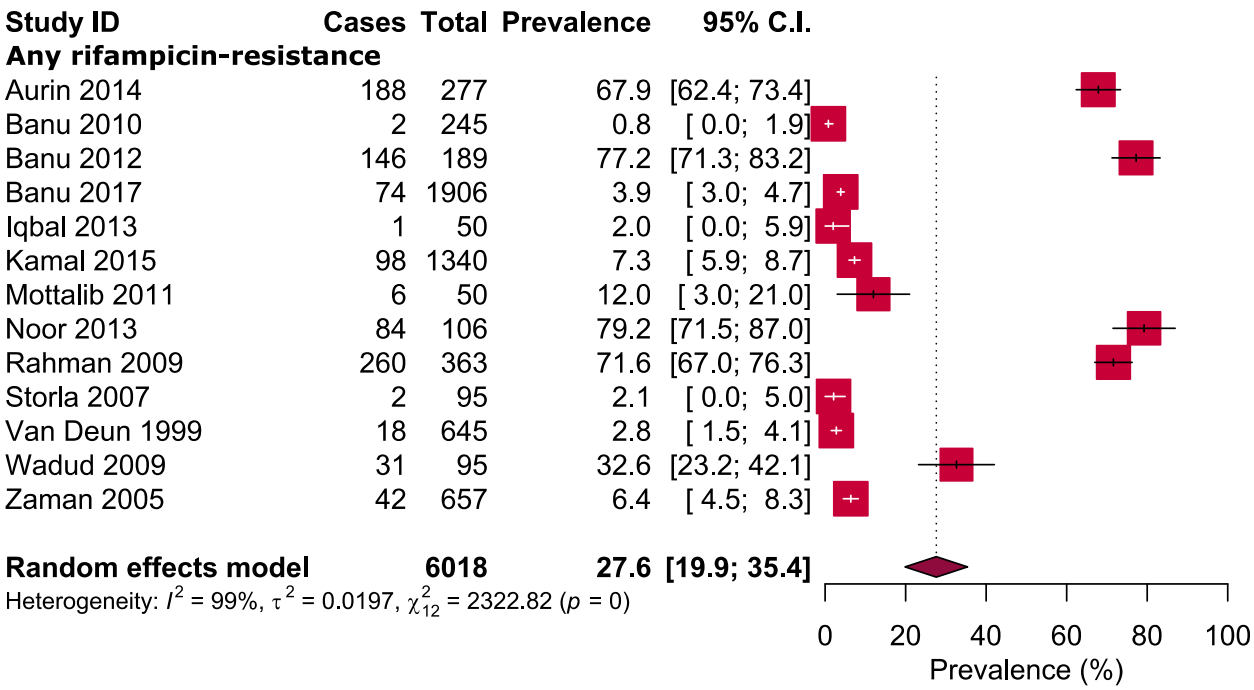
A


Study ID Cases Total Prevalence 95% C.I.
Any streptomycin-resistance
Banu 2010 55 245 22.4 [17.2; 27.7]
Banu 2012 149 189 78.8 [73.0; 84.7]
Banu 2017 373 1906 19.6 [17.8; 21.4]
Iqbal 2013 1 50 2.0 [0.0; 5.9]
Kamal 2015 197 1340 14.7 [12.8; 16.6]
Mottalib 2011 11 50 22.0 [10.5; 33.5]
Rahman 2009 202 363 55.6 [50.5; 60.8]
Storla 2007 17 95 17.9 [10.2; 25.6]
Wadud 2009 13 95 13.7 [6.8; 20.6]
Zaman 2005 297 657 45.2 [41.4; 49.0]
Random effects model 4990 29.2 [17.8; 40.6]
Heterogeneity: I^2 = 99%, τ^2 = 0.0330, χ^2_9 = 847.85 (p < 0.01)
0 10 20 30 40 50 60
Prevalence (%)

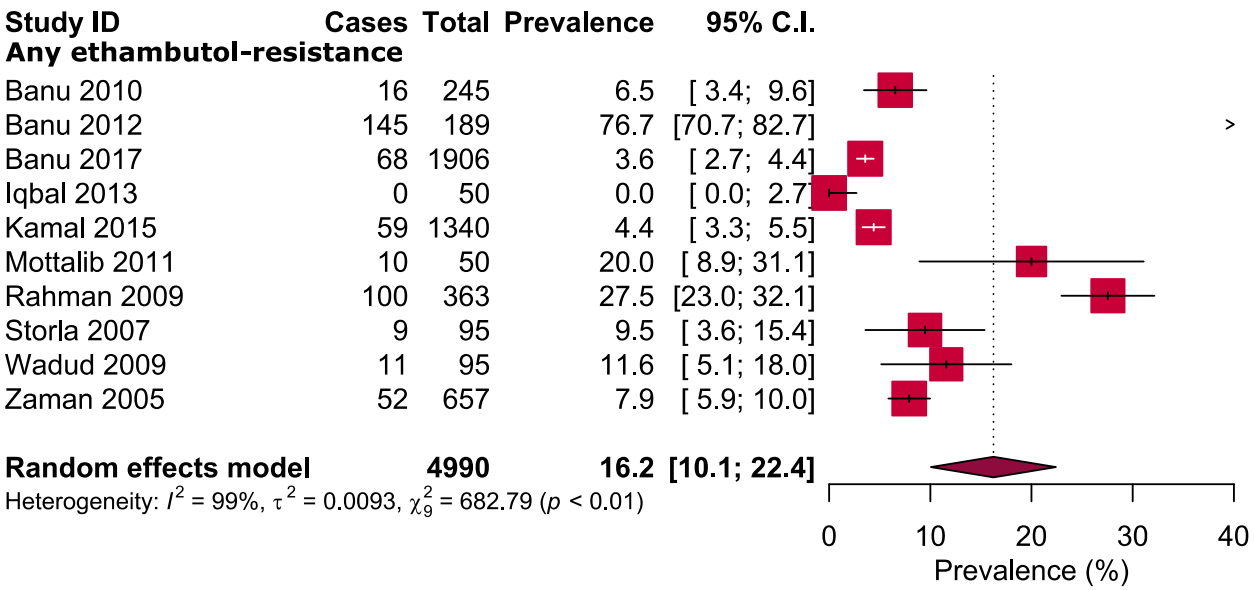
B


Study ID Cases Total Prevalence 95% C.I.
Any isoniazid-resistance
Aurin 2014 190 277 68.6 [63.1; 74.1]
Banu 2010 28 245 11.4 [7.4; 15.4]
Banu 2012 150 189 79.4 [73.6; 85.1]
Banu 2017 145 1906 7.6 [6.4; 8.8]
Iqbal 2013 1 50 2.0 [0.0; 5.9]
Kamal 2015 155 1340 11.6 [9.9; 13.3]
Mottalib 2011 13 50 26.0 [13.8; 38.2]
Noor 2013 89 106 84.0 [77.0; 90.9]
Rahman 2009 276 363 76.0 [71.6; 80.4]
Storla 2007 22 95 23.2 [14.7; 31.6]
Van Deun 1999 79 645 12.2 [9.7; 14.8]
Wadud 2009 38 95 40.0 [30.1; 49.9]
Zaman 2005 93 657 14.2 [11.5; 16.8]
Random effects model 6018 35.0 [23.1; 46.8]
Heterogeneity: I^2 = 99%, τ^2 = 0.0465, χ^2_{12} = 2208.77 (p = 0)
0 20 40 60 80 100
Prevalence (%)

C


Study ID Cases Total Prevalence 95% C.I.
Any rifampicin-resistance
Aurin 2014 188 277 67.9 [62.4; 73.4]
Banu 2010 2 245 0.8 [0.0; 1.9]
Banu 2012 146 189 77.2 [71.3; 83.2]
Banu 2017 74 1906 3.9 [3.0; 4.7]
Iqbal 2013 1 50 2.0 [0.0; 5.9]
Kamal 2015 98 1340 7.3 [5.9; 8.7]
Mottalib 2011 6 50 12.0 [3.0; 21.0]
Noor 2013 84 106 79.2 [71.5; 87.0]
Rahman 2009 260 363 71.6 [67.0; 76.3]
Storla 2007 2 95 2.1 [0.0; 5.0]
Van Deun 1999 18 645 2.8 [1.5; 4.1]
Wadud 2009 31 95 32.6 [23.2; 42.1]
Zaman 2005 42 657 6.4 [4.5; 8.3]
Random effects model 6018 27.6 [19.9; 35.4]
Heterogeneity: I^2 = 99%, τ^2 = 0.0197, χ^2_{12} = 2322.82 (p = 0)
0 20 40 60 80 100
Prevalence (%)

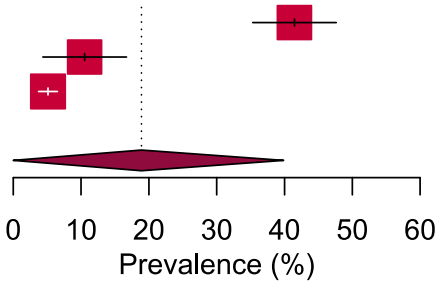
D


Study ID Cases Total Prevalence 95% C.I.
Any ethambutol-resistance
Banu 2010 16 245 6.5 [3.4; 9.6]
Banu 2012 145 189 76.7 [70.7; 82.7]
Banu 2017 68 1906 3.6 [2.7; 4.4]
Iqbal 2013 0 50 0.0 [0.0; 2.7]
Kamal 2015 59 1340 4.4 [3.3; 5.5]
Mottalib 2011 10 50 20.0 [8.9; 31.1]
Rahman 2009 100 363 27.5 [23.0; 32.1]
Storla 2007 9 95 9.5 [3.6; 15.4]
Wadud 2009 11 95 11.6 [5.1; 18.0]
Zaman 2005 52 657 7.9 [5.9; 10.0]
Random effects model 4990 16.2 [10.1; 22.4]
Heterogeneity: I^2 = 99%, τ^2 = 0.0093, χ^2_9 = 682.79 (p < 0.01)
0 10 20 30 40
Prevalence (%)

E

Study ID	Cases	Total	Prevalence	95% C.I.
Any pyrazinamide-resistance				
Aung 2014	102	246	41.5	[35.3; 47.6]
Wadud 2009	10	95	10.5	[4.4; 16.7]
Zignol 2016	49	955	5.1	[3.7; 6.5]
Random effects model		**1296**	**18.9**	**[0.0; 39.9]**

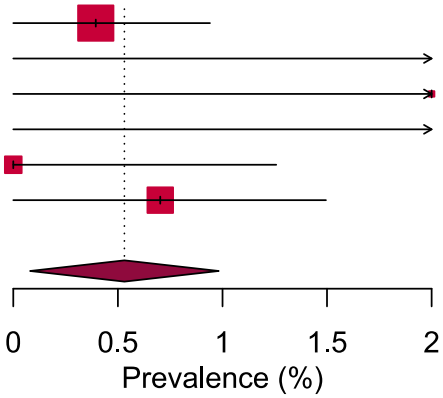
Heterogeneity: I^2 = 98%, τ^2 = 0.0336, χ^2_2 = 128.47 (p < 0.01)



F

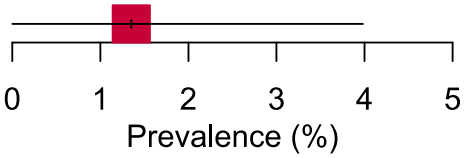
Study ID	Cases	Total	Prevalence	95% C.I.
Any kanamycin-resistance				
Aung 2014	2	507	0.4	[0.0; 0.9]
Heysell 2015	3	74	4.1	[0.0; 8.5]
Iqbal 2013	1	50	2.0	[0.0; 5.9]
Noor 2012	2	84	2.4	[0.0; 5.6]
Noor 2013	0	109	0.0	[0.0; 1.3]
Van Deun 2010	3	427	0.7	[0.0; 1.5]
Random effects model		**1251**	**0.5**	**[0.1; 1.0]**

Heterogeneity: I^2 = 5%, τ^2 < 0.0001, χ^2_5 = 5.25 (p = 0.39)



G

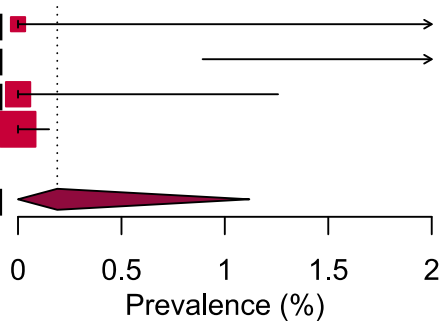
Study ID	Cases	Total	Prevalence	95% C.I.
Any amikacin-resistance				
Heysell 2015	1	74	1.4	[0; 4]



H

Study ID	Cases	Total	Prevalence	95% C.I.
Any gatifloxacin-resistance				
Iqbal 2013	0	50	0.0	[0.0; 2.7]
Noor 2012	5	84	6.0	[0.9; 11.0]
Noor 2013	0	109	0.0	[0.0; 1.3]
Zignol 2016	0	922	0.0	[0.0; 0.2]
Random effects model		**1165**	**0.2**	**[0.0; 1.1]**

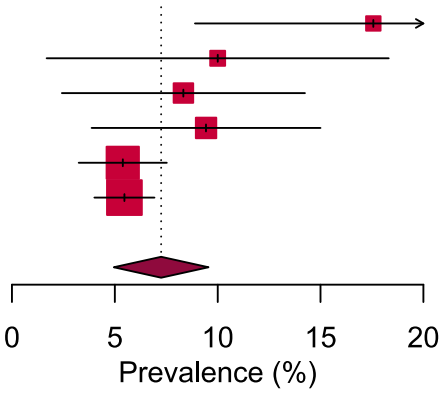
Heterogeneity: I^2 = 44%, τ^2 < 0.0001, χ^2_3 = 5.31 (p = 0.15)



I

Study ID	Cases	Total	Prevalence	95% C.I.
Any ofloxacin-resistance				
Heysell 2015	13	74	17.6	[8.9; 26.2]
Iqbal 2013	5	50	10.0	[1.7; 18.3]
Noor 2012	7	84	8.3	[2.4; 14.2]
Noor 2013	10	106	9.4	[3.9; 15.0]
Van Deun 2010	23	427	5.4	[3.2; 7.5]
Zignol 2016	51	933	5.5	[4.0; 6.9]
Random effects model		**1674**	**7.3**	**[5.0; 9.6]**

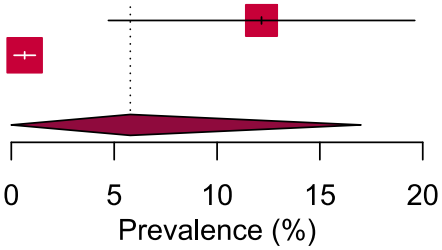
Heterogeneity: I^2 = 53%, τ^2 = 0.0003, χ^2_5 = 10.62 (p = 0.06)



J

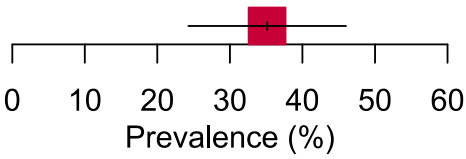
Study ID	Cases	Total	Prevalence	95% C.I.
Any moxifloxacin-resistance				
Heysell 2015	9	74	12.2	[4.7; 19.6]
Zignol 2016	6	925	0.6	[0.1; 1.2]
Random effects model		**999**	**5.8**	**[0.0; 17.0]**

Heterogeneity: I^2 = 89%, τ^2 = 0.0059, χ^2_1 = 9.14 (p < 0.01)



K

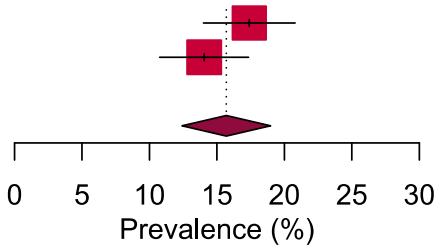
Study ID	Cases	Total	Prevalence	95% C.I.
Any ethionamide-resistance				
Heysell 2015	26	74	35.1	[24.3; 46]



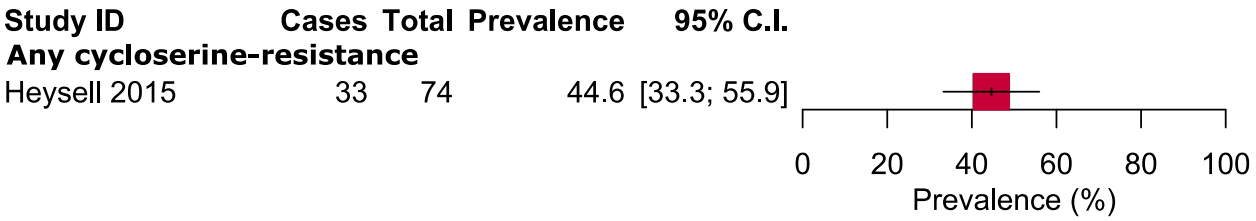
L

Study ID	Cases	Total	Prevalence	95% C.I.
Any prothionamide-resistance				
Aung 2014	83	477	17.4	[14.0; 20.8]
Van Deun 2010	60	427	14.1	[10.8; 17.3]
Random effects model		**904**	**15.7**	**[12.4; 19.0]**

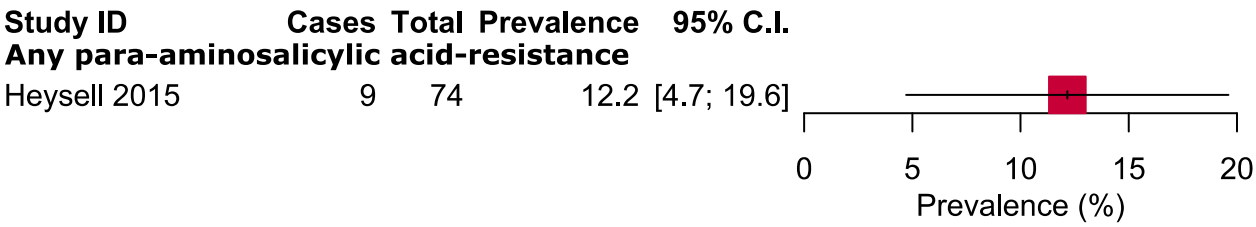
Heterogeneity: I^2 = 48%, τ^2 = 0.0003, χ^2_1 = 1.92 (p = 0.17)



M



N



O

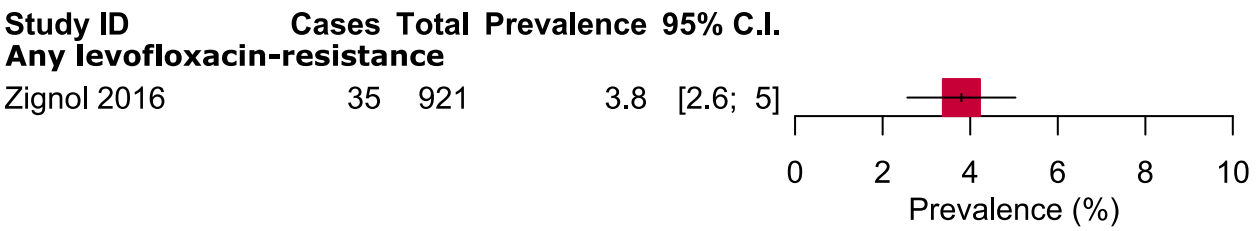
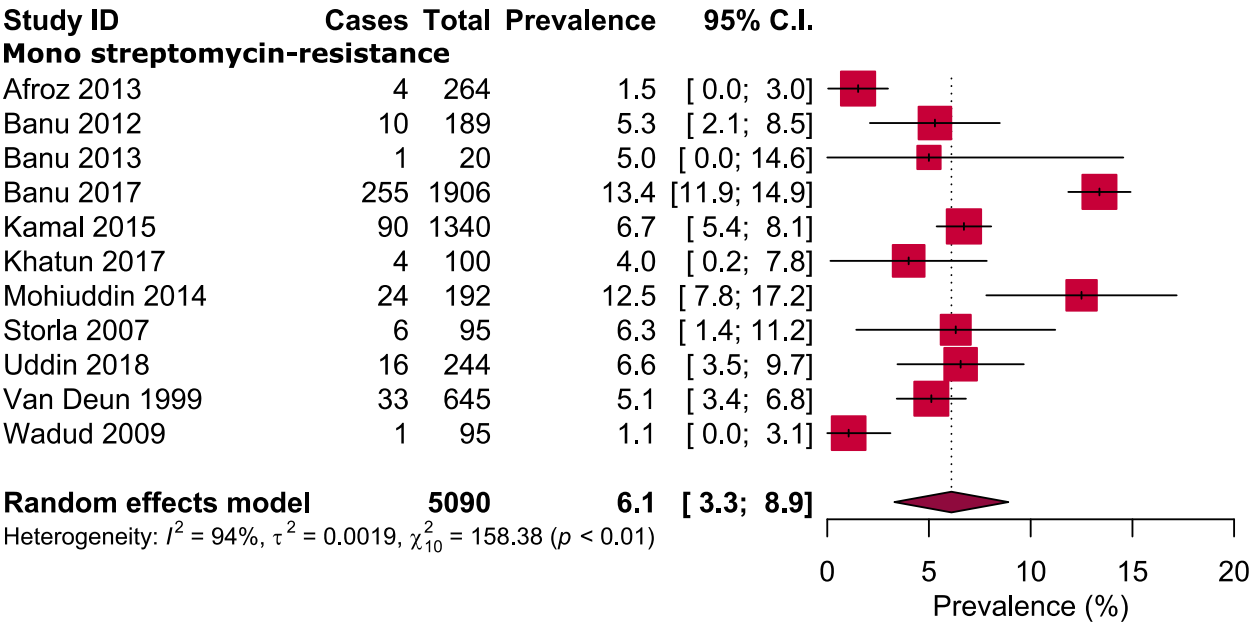
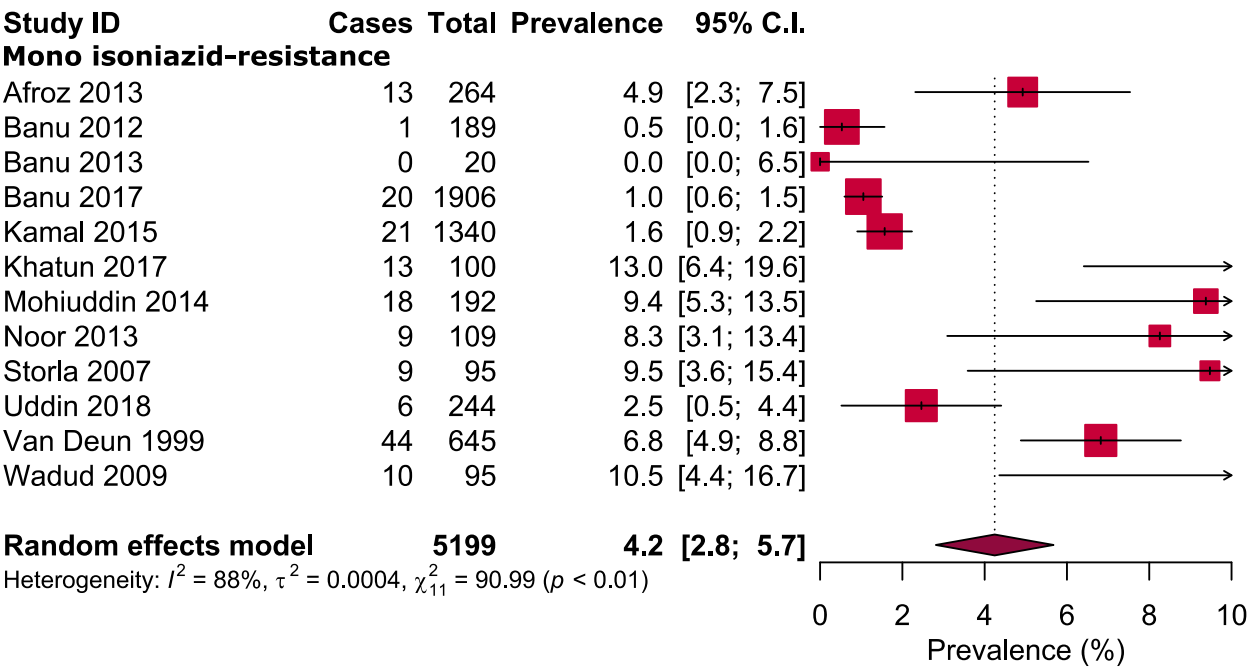


Figure S1: Any resistance to first- and second-lines anti-TB drugs: A) streptomycin, B) isoniazid, C) rifampicin, D) ethambutol, E) pyrazinamide, F) kanamycin, G) amikacin, H) gatifloxacin, I) ofloxacin, J) moxifloxacin, K) ethionamide, L) prothionamide, M) cycloserine, N) para-aminosalicylic acid, and O) levofloxacin.

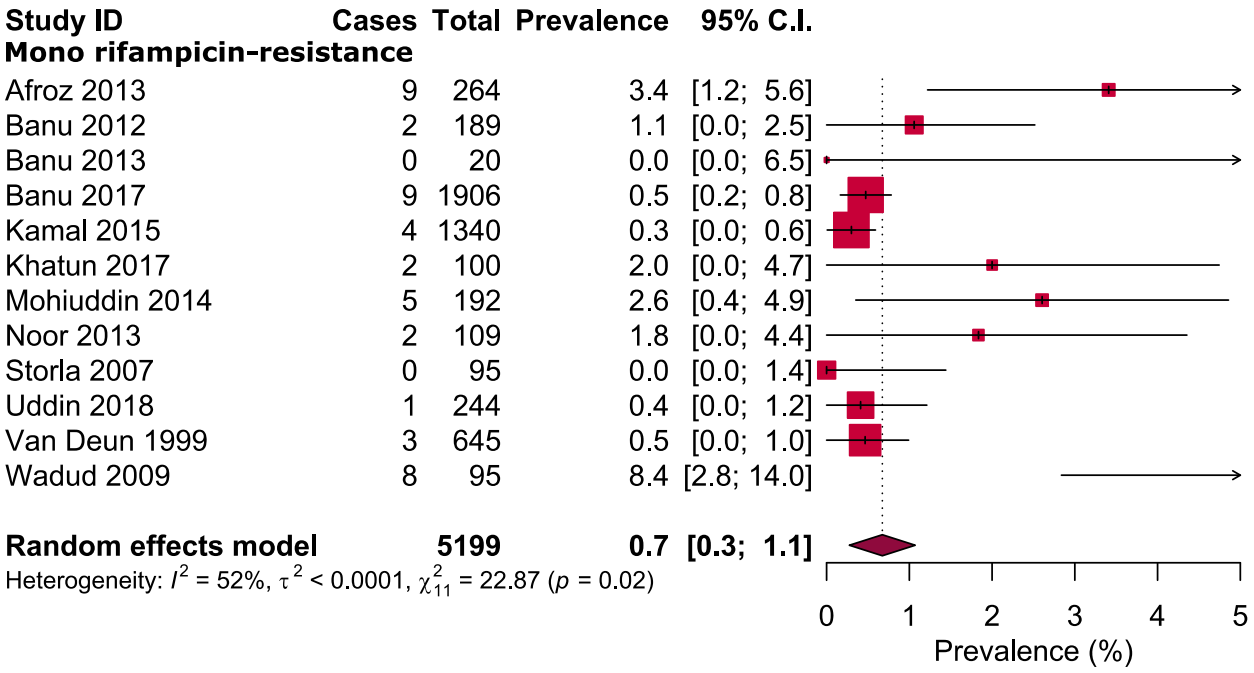
A


Study ID Cases Total Prevalence 95% C.I.
Mono streptomycin-resistance
Afroz 2013 4 264 1.5 [0.0; 3.0]
Banu 2012 10 189 5.3 [2.1; 8.5]
Banu 2013 1 20 5.0 [0.0; 14.6]
Banu 2017 255 1906 13.4 [11.9; 14.9]
Kamal 2015 90 1340 6.7 [5.4; 8.1]
Khatun 2017 4 100 4.0 [0.2; 7.8]
Mohiuddin 2014 24 192 12.5 [7.8; 17.2]
Storla 2007 6 95 6.3 [1.4; 11.2]
Uddin 2018 16 244 6.6 [3.5; 9.7]
Van Deun 1999 33 645 5.1 [3.4; 6.8]
Wadud 2009 1 95 1.1 [0.0; 3.1]
Random effects model 5090 6.1 [3.3; 8.9]
Heterogeneity: I^2 = 94%, τ^2 = 0.0019, χ^2_{10} = 158.38 (p < 0.01)
0 5 10 15 20
Prevalence (%)

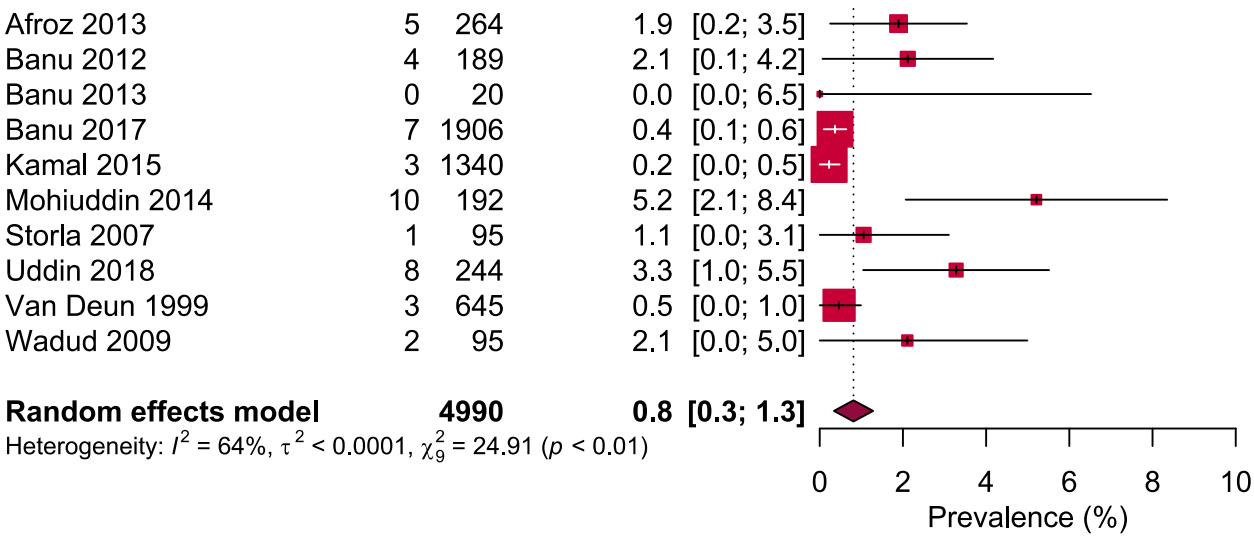
B


Study ID Cases Total Prevalence 95% C.I.
Mono isoniazid-resistance
Afroz 2013 13 264 4.9 [2.3; 7.5]
Banu 2012 1 189 0.5 [0.0; 1.6]
Banu 2013 0 20 0.0 [0.0; 6.5]
Banu 2017 20 1906 1.0 [0.6; 1.5]
Kamal 2015 21 1340 1.6 [0.9; 2.2]
Khatun 2017 13 100 13.0 [6.4; 19.6]
Mohiuddin 2014 18 192 9.4 [5.3; 13.5]
Noor 2013 9 109 8.3 [3.1; 13.4]
Storla 2007 9 95 9.5 [3.6; 15.4]
Uddin 2018 6 244 2.5 [0.5; 4.4]
Van Deun 1999 44 645 6.8 [4.9; 8.8]
Wadud 2009 10 95 10.5 [4.4; 16.7]
Random effects model 5199 4.2 [2.8; 5.7]
Heterogeneity: I^2 = 88%, τ^2 = 0.0004, χ^2_{11} = 90.99 (p < 0.01)
0 2 4 6 8 10
Prevalence (%)

C


Study ID Cases Total Prevalence 95% C.I.
Mono rifampicin-resistance
Afroz 2013 9 264 3.4 [1.2; 5.6]
Banu 2012 2 189 1.1 [0.0; 2.5]
Banu 2013 0 20 0.0 [0.0; 6.5]
Banu 2017 9 1906 0.5 [0.2; 0.8]
Kamal 2015 4 1340 0.3 [0.0; 0.6]
Khatun 2017 2 100 2.0 [0.0; 4.7]
Mohiuddin 2014 5 192 2.6 [0.4; 4.9]
Noor 2013 2 109 1.8 [0.0; 4.4]
Storla 2007 0 95 0.0 [0.0; 1.4]
Uddin 2018 1 244 0.4 [0.0; 1.2]
Van Deun 1999 3 645 0.5 [0.0; 1.0]
Wadud 2009 8 95 8.4 [2.8; 14.0]
Random effects model 5199 0.7 [0.3; 1.1]
Heterogeneity: I^2 = 52%, τ^2 < 0.0001, χ^2_{11} = 22.87 (p = 0.02)
0 1 2 3 4 5
Prevalence (%)

D


Study ID Cases Total Prevalence 95% C.I.
Mono ethambutol-resistance
Afroz 2013 5 264 1.9 [0.2; 3.5]
Banu 2012 4 189 2.1 [0.1; 4.2]
Banu 2013 0 20 0.0 [0.0; 6.5]
Banu 2017 7 1906 0.4 [0.1; 0.6]
Kamal 2015 3 1340 0.2 [0.0; 0.5]
Mohiuddin 2014 10 192 5.2 [2.1; 8.4]
Storla 2007 1 95 1.1 [0.0; 3.1]
Uddin 2018 8 244 3.3 [1.0; 5.5]
Van Deun 1999 3 645 0.5 [0.0; 1.0]
Wadud 2009 2 95 2.1 [0.0; 5.0]
Random effects model 4990 0.8 [0.3; 1.3]
Heterogeneity: I^2 = 64%, τ^2 < 0.0001, χ^2_9 = 24.91 (p < 0.01)
0 2 4 6 8 10
Prevalence (%)

E

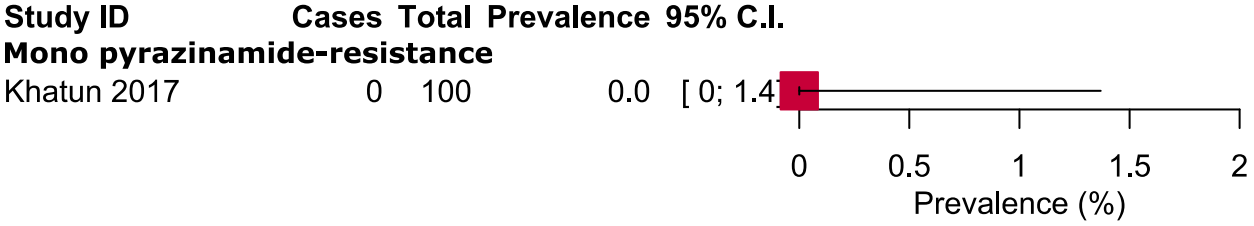
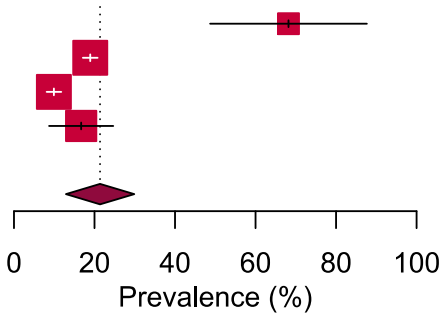

Study ID Cases Total Prevalence 95% C.I.
Mono pyrazinamide-resistance
Khatun 2017 0 100 0.0 [0; 1.4]
0 0.5 1 1.5 2
Prevalence (%)

Figure S2: Mono resistance to anti-TB drugs: A) streptomycin, B) isoniazid, C) rifampicin, D) ethambutol, and E) pyrazinamide.

A

Study ID	Cases	Total	Prevalence	95% C.I.
Any streptomycin-resistance (newly diagnosed)				
Banu 2012	15	22	68.2	[48.7; 87.6]
Banu 2017	332	1754	18.9	[17.1; 20.8]
Kamal 2015	104	1049	9.9	[8.1; 11.7]
Storla 2007	14	84	16.7	[8.7; 24.6]
Random effects model		**2909**	**21.4**	**[12.9; 29.9]**

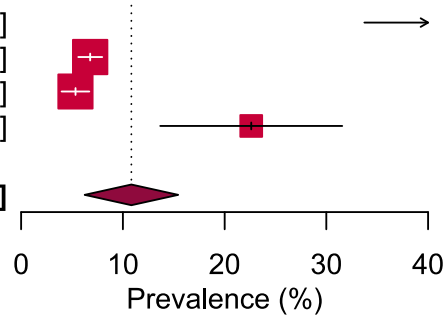
Heterogeneity: I^2 = 96%, τ^2 = 0.0058, χ^2_3 = 76.57 (p < 0.01)



B

Study ID	Cases	Total	Prevalence	95% C.I.
Any isoniazid-resistance (newly diagnosed)				
Banu 2012	12	22	54.5	[33.7; 75.4]
Banu 2017	119	1754	6.8	[5.6; 8.0]
Kamal 2015	56	1049	5.3	[4.0; 6.7]
Storla 2007	19	84	22.6	[13.7; 31.6]
Random effects model		**2909**	**10.8**	**[6.2; 15.4]**

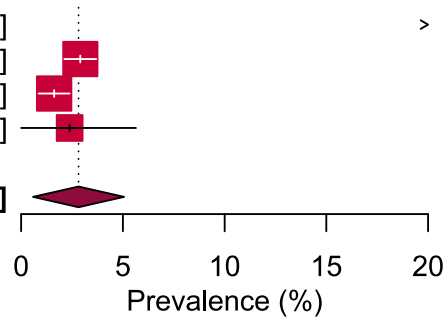
Heterogeneity: I^2 = 92%, τ^2 = 0.0013, χ^2_3 = 35.94 (p < 0.01)



C

Study ID	Cases	Total	Prevalence	95% C.I.
Any rifampicin-resistance (newly diagnosed)				
Banu 2012	11	22	50.0	[29.1; 70.9]
Banu 2017	51	1754	2.9	[2.1; 3.7]
Kamal 2015	17	1049	1.6	[0.9; 2.4]
Storla 2007	2	84	2.4	[0.0; 5.6]
Random effects model		**2909**	**2.8**	**[0.6; 5.1]**

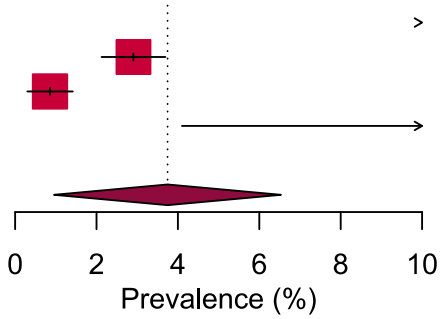
Heterogeneity: I^2 = 88%, τ^2 = 0.0003, χ^2_3 = 25.35 (p < 0.01)



D

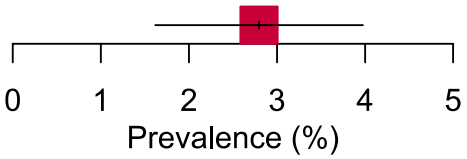
Study ID	Cases	Total	Prevalence	95% C.I.
Any ethambutol-resistance (newly diagnosed)				
Banu 2012	10	22	45.5	[24.6; 66.3]
Banu 2017	51	1754	2.9	[2.1; 3.7]
Kamal 2015	9	1049	0.9	[0.3; 1.4]
Storla 2007	9	84	10.7	[4.1; 17.3]
Random effects model		**2909**	**3.7**	**[1.0; 6.5]**

Heterogeneity: I^2 = 93%, τ^2 = 0.0005, χ^2_3 = 41.77 (p < 0.01)



E

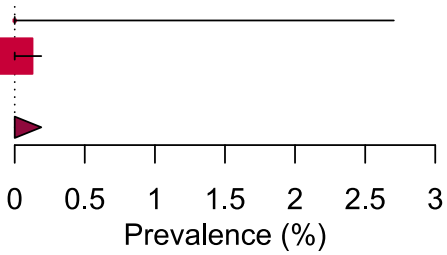
Study ID	Cases	Total	Prevalence	95% C.I.
Any pyrazinamide-resistance (newly diagnosed)				
Zignol 2016	21	751	2.8	[1.6; 4]



F

Study ID	Cases	Total	Prevalence	95% C.I.
Any gatifloxacin-resistance (newly diagnosed)				
Iqbal 2013	0	50	0.0	[0; 2.7]
Zignol 2016	0	729	0.0	[0; 0.2]
Random effects model		**779**	**0.0**	**[0; 0.2]**

Heterogeneity: I^2 = 0%, τ^2 = 0, χ^2_1 = 0.00 (p = 1.00)

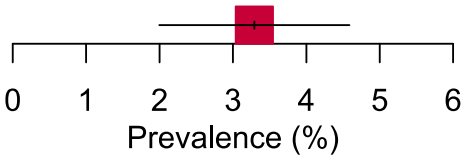


G

Study ID	Cases	Total	Prevalence	95% C.I.
Any kanamycin-resistance (newly diagnosed)				
Iqbal 2013	0	50	0.0	[0; 2.7]

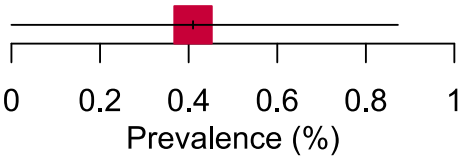
H

Study ID	Cases	Total	Prevalence	95% C.I.
Any levofloxacin-resistance (newly diagnosed)				
Zignol 2016	24	729	3.3	[2; 4.6]



I

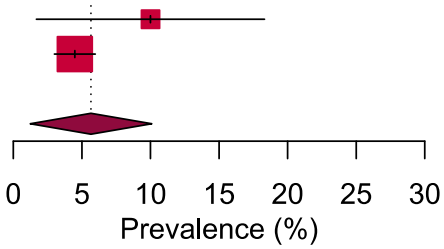
Study ID	Cases	Total	Prevalence	95% C.I.
Any moxifloxacin-resistance (newly diagnosed)				
Zignol 2016	3	732	0.4	[0; 0.9]



J

Study ID	Cases	Total	Prevalence	95% C.I.
Any ofloxacin-resistance (newly diagnosed)				
Iqbal 2013	5	50	10.0	[1.7; 18.3]
Zignol 2016	33	736	4.5	[3.0; 6.0]
Random effects model		**786**	**5.7**	**[1.2; 10.1]**

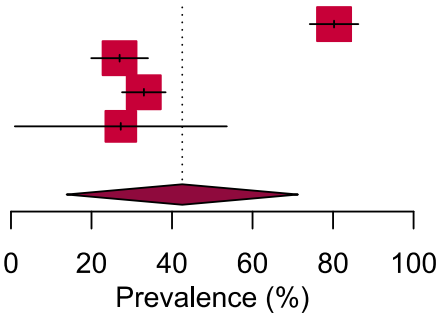
Heterogeneity: I^2 = 39%, τ^2 = 0.0006, χ^2_1 = 1.64 (p = 0.20)



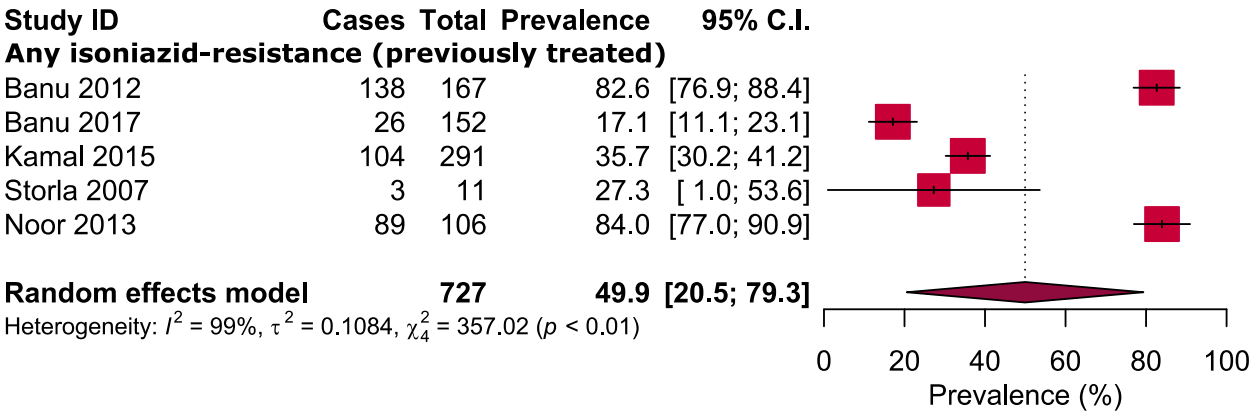
K

Study ID	Cases	Total	Prevalence	95% C.I.
Any streptomycin-resistance (previously treated)				
Banu 2012	134	167	80.2	[74.2; 86.3]
Banu 2017	41	152	27.0	[19.9; 34.0]
Kamal 2015	96	291	33.0	[27.6; 38.4]
Storla 2007	3	11	27.3	[1.0; 53.6]
Random effects model		**621**	**42.5**	**[13.8; 71.3]**

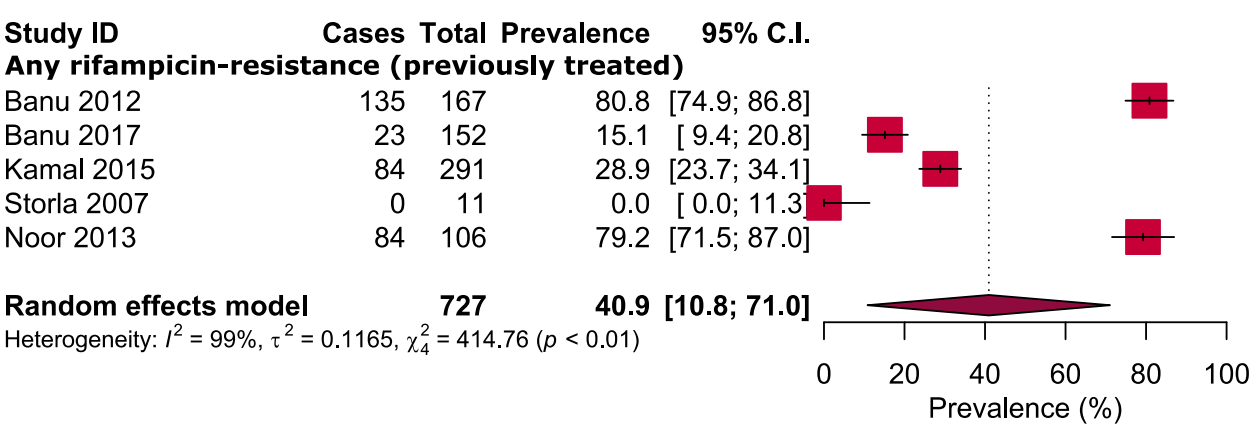
Heterogeneity: I^2 = 98%, τ^2 = 0.0813, χ^2_3 = 175.31 (p < 0.01)



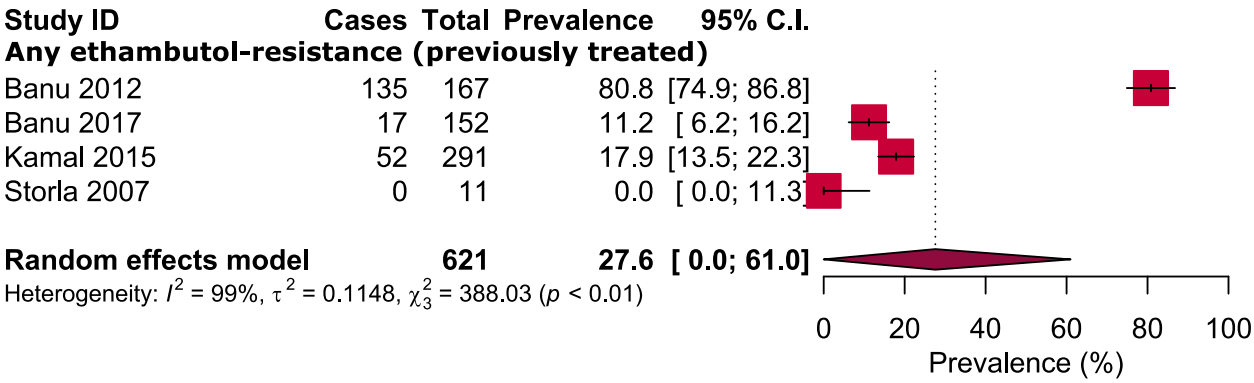
L


Study ID Cases Total Prevalence 95% C.I.
Any isoniazid-resistance (previously treated)
Banu 2012 138 167 82.6 [76.9; 88.4]
Banu 2017 26 152 17.1 [11.1; 23.1]
Kamal 2015 104 291 35.7 [30.2; 41.2]
Storla 2007 3 11 27.3 [1.0; 53.6]
Noor 2013 89 106 84.0 [77.0; 90.9]
Random effects model 727 49.9 [20.5; 79.3]
Heterogeneity: I^2 = 99%, τ^2 = 0.1084, χ^2_4 = 357.02 (p < 0.01)
0 20 40 60 80 100
Prevalence (%)

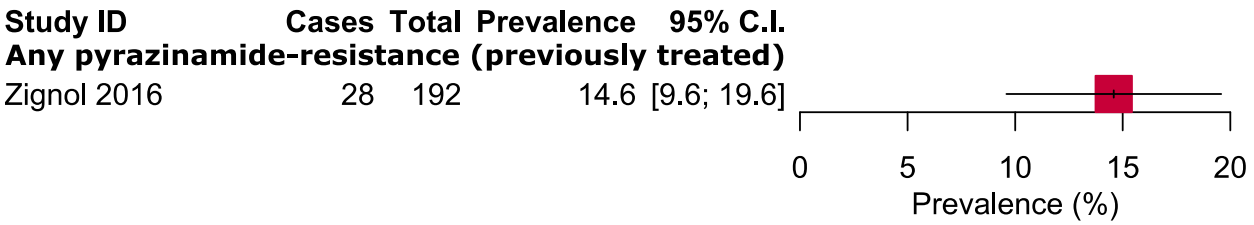
M


Study ID Cases Total Prevalence 95% C.I.
Any rifampicin-resistance (previously treated)
Banu 2012 135 167 80.8 [74.9; 86.8]
Banu 2017 23 152 15.1 [9.4; 20.8]
Kamal 2015 84 291 28.9 [23.7; 34.1]
Storla 2007 0 11 0.0 [0.0; 11.3]
Noor 2013 84 106 79.2 [71.5; 87.0]
Random effects model 727 40.9 [10.8; 71.0]
Heterogeneity: I^2 = 99%, τ^2 = 0.1165, χ^2_4 = 414.76 (p < 0.01)
0 20 40 60 80 100
Prevalence (%)

N


Study ID Cases Total Prevalence 95% C.I.
Any ethambutol-resistance (previously treated)
Banu 2012 135 167 80.8 [74.9; 86.8]
Banu 2017 17 152 11.2 [6.2; 16.2]
Kamal 2015 52 291 17.9 [13.5; 22.3]
Storla 2007 0 11 0.0 [0.0; 11.3]
Random effects model 621 27.6 [0.0; 61.0]
Heterogeneity: I^2 = 99%, τ^2 = 0.1148, χ^2_3 = 388.03 (p < 0.01)
0 20 40 60 80 100
Prevalence (%)

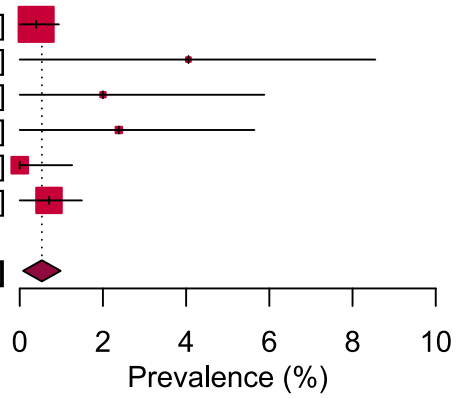
O


Study ID Cases Total Prevalence 95% C.I.
Any pyrazinamide-resistance (previously treated)
Zignol 2016 28 192 14.6 [9.6; 19.6]
0 5 10 15 20
Prevalence (%)

P

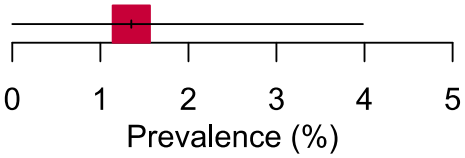
Study ID	Cases	Total	Prevalence	95% C.I.
Any kanamycin-resistance (previously treated)				
Aung 2014	2	507	0.4	[0.0; 0.9]
Heysell 2015	3	74	4.1	[0.0; 8.5]
Iqbal 2013	1	50	2.0	[0.0; 5.9]
Noor 2012	2	84	2.4	[0.0; 5.6]
Noor 2013	0	109	0.0	[0.0; 1.3]
Van Deun 2010	3	427	0.7	[0.0; 1.5]
Random effects model		**1251**	**0.5**	**[0.1; 1.0]**

Heterogeneity: I^2 = 5%, τ^2 < 0.0001, χ^2_5 = 5.25 (p = 0.39)



Q

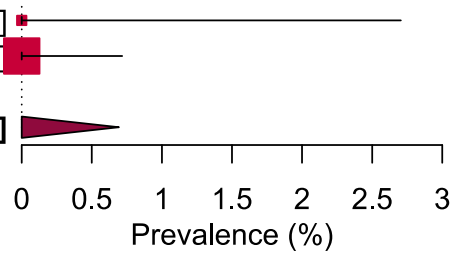
Study ID	Cases	Total	Prevalence	95% C.I.
Any amikacin-resistance (previously treated)				
Heysell 2015	1	74	1.4	[0; 4]



R

Study ID	Cases	Total	Prevalence	95% C.I.
Any gatifloxacin-resistance (previously treated)				
Iqbal 2013	0	50	0.0	[0; 2.7]
Zignol 2016	0	192	0.0	[0; 0.7]
Random effects model		**242**	**0.0**	**[0; 0.7]**

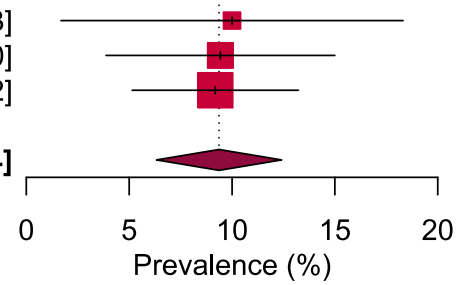
Heterogeneity: I^2 = 0%, τ^2 = 0, χ^2_1 = 0.00 (p = 1.00)



S

Study ID	Cases	Total	Prevalence	95% C.I.
Any ofloxacin-resistance (previously treated)				
Iqbal 2013	5	50	10.0	[1.7; 18.3]
Noor 2013	10	106	9.4	[3.9; 15.0]
Zignol 2016	18	196	9.2	[5.1; 13.2]
Random effects model		**352**	**9.4**	**[6.3; 12.4]**

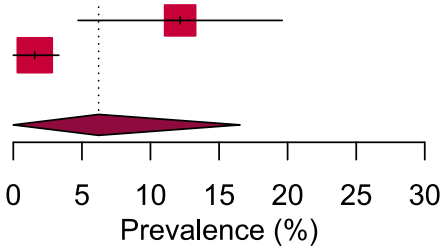
Heterogeneity: I^2 = 0%, τ^2 = 0, χ^2_2 = 0.03 (p = 0.98)



T

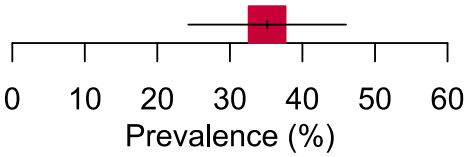
Study ID	Cases	Total	Prevalence	95% C.I.
Any moxifloxacin-resistance (previously treated)				
Heysell 2015	9	74	12.2	[4.7; 19.6]
Zignol 2016	3	192	1.6	[0.0; 3.3]
Random effects model		**266**	**6.2**	**[0.0; 16.5]**

Heterogeneity: I^2 = 86%, τ^2 = 0.0049, χ^2_1 = 7.37 (p < 0.01)



U

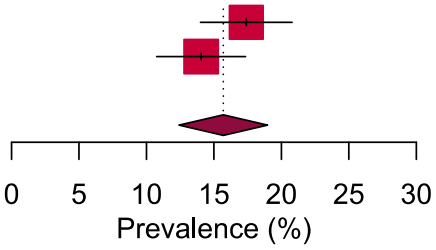
Study ID	Cases	Total	Prevalence	95% C.I.
Any ethionamide-resistance (previously treated)				
Heysell 2015	26	74	35.1	[24.3; 46]



V

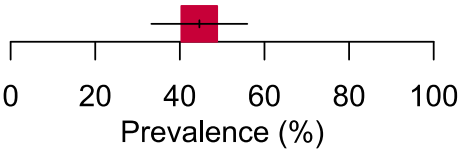
Study ID	Cases	Total	Prevalence	95% C.I.
Any prothionamide-resistance (previously treated)				
Aung 2014	83	477	17.4	[14.0; 20.8]
Van Deun 2010	60	427	14.1	[10.8; 17.3]
Random effects model		**904**	**15.7**	**[12.4; 19.0]**

Heterogeneity: I^2 = 48%, τ^2 = 0.0003, χ^2_1 = 1.92 (p = 0.17)



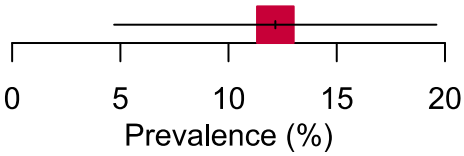
W

Study ID	Cases	Total	Prevalence	95% C.I.
Any cycloserine-resistance (previously treated)				
Heysell 2015	33	74	44.6	[33.3; 55.9]



X

Study ID	Cases	Total	Prevalence	95% C.I.
Any para-aminosalicylic acid-resistance (previously treated)				
Heysell 2015	9	74	12.2	[4.7; 19.6]



Y

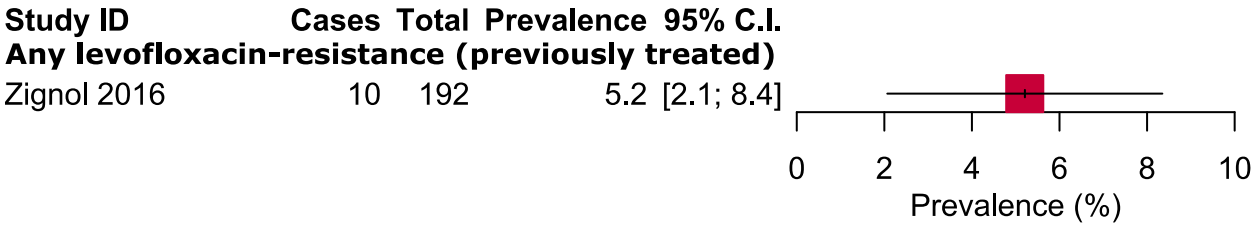
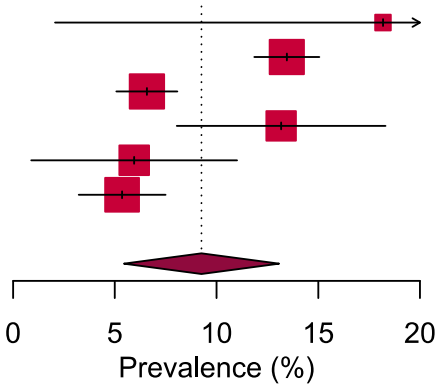


Figure S3: Any resistance to anti-TB drugs in newly diagnosed patients: A) streptomycin B) isoniazid, C) rifampicin, D) ethambutol E) pyrazinamide, F) gatifloxacin, G) kanamycin, H) levofloxacin, I) moxifloxacin, J) ofloxacin resistance and any resistance to anti-TB drugs in previously treated and newly diagnosed patients as well as any resistance to anti-TB drugs in previously treated patients: K) streptomycin, L) isoniazid, M) rifampicin, N) ethambutol, O) pyrazinamide, P) kanamycin, Q) amikacin, R) gatifloxacin, S) ofloxacin, T) moxifloxacin, U) ethionamide, V) prothionamide, W) cycloserine, X) para-aminosalicylic acid, and Y) levofloxacin.

A

Study ID	Cases	Total	Prevalence	95% C.I.
Mono streptomycin-resistance (newly diagnosed)				
Banu 2012	4	22	18.2	[2.1; 34.3]
Banu 2017	236	1754	13.5	[11.9; 15.1]
Kamal 2015	69	1049	6.6	[5.1; 8.1]
Mohiuddin 2014	22	167	13.2	[8.0; 18.3]
Storla 2007	5	84	6.0	[0.9; 11.0]
Van Deun 1999	23	429	5.4	[3.2; 7.5]
Random effects model		**3505**	**9.3**	**[5.4; 13.1]**

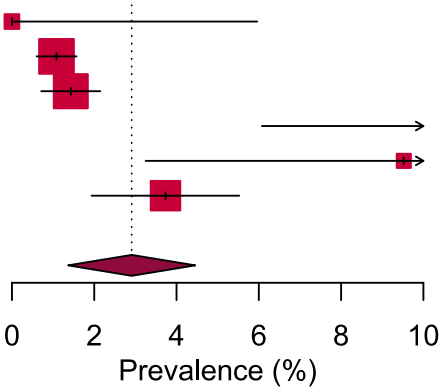
Heterogeneity: I^2 = 91%, τ^2 = 0.0017, χ^2_5 = 56.28 (p < 0.01)



B

Study ID	Cases	Total	Prevalence	95% C.I.
Mono isoniazid-resistance (newly diagnosed)				
Banu 2012	0	22	0.0	[0.0; 6.0]
Banu 2017	19	1754	1.1	[0.6; 1.6]
Kamal 2015	15	1049	1.4	[0.7; 2.1]
Mohiuddin 2014	18	167	10.8	[6.1; 15.5]
Storla 2007	8	84	9.5	[3.2; 15.8]
Van Deun 1999	16	429	3.7	[1.9; 5.5]
Random effects model		**3505**	**2.9**	**[1.4; 4.5]**

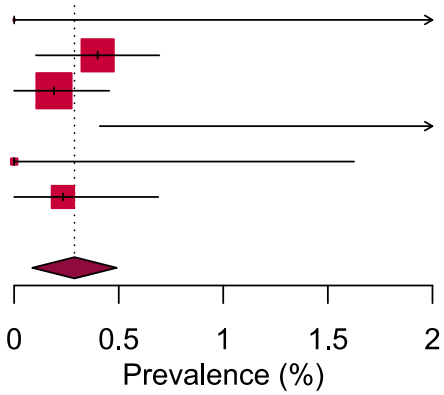
Heterogeneity: I^2 = 83%, τ^2 = 0.0002, χ^2_5 = 30.05 (p < 0.01)



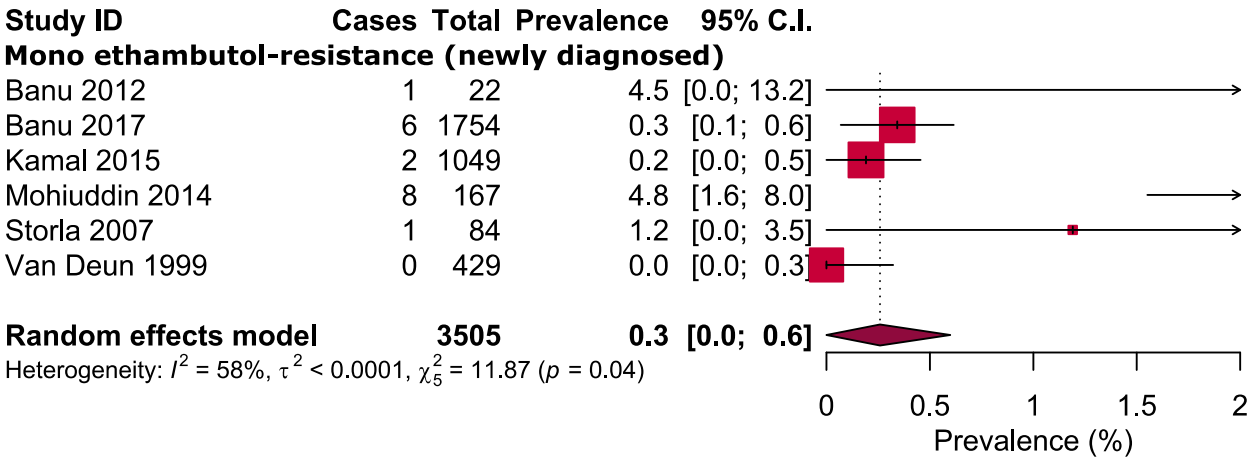
C

Study ID	Cases	Total	Prevalence	95% C.I.
Mono rifampicin-resistance (newly diagnosed)				
Banu 2012	0	22	0.0	[0.0; 6.0]
Banu 2017	7	1754	0.4	[0.1; 0.7]
Kamal 2015	2	1049	0.2	[0.0; 0.5]
Mohiuddin 2014	5	167	3.0	[0.4; 5.6]
Storla 2007	0	84	0.0	[0.0; 1.6]
Van Deun 1999	1	429	0.2	[0.0; 0.7]
Random effects model		**3505**	**0.3**	**[0.1; 0.5]**

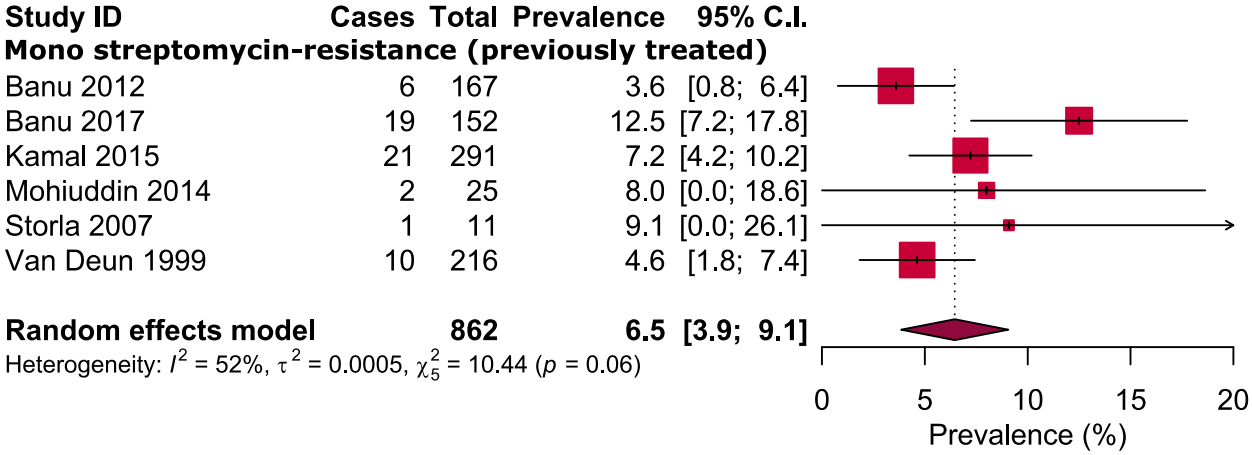
Heterogeneity: I^2 = 8%, τ^2 < 0.0001, χ^2_5 = 5.46 (p = 0.36)



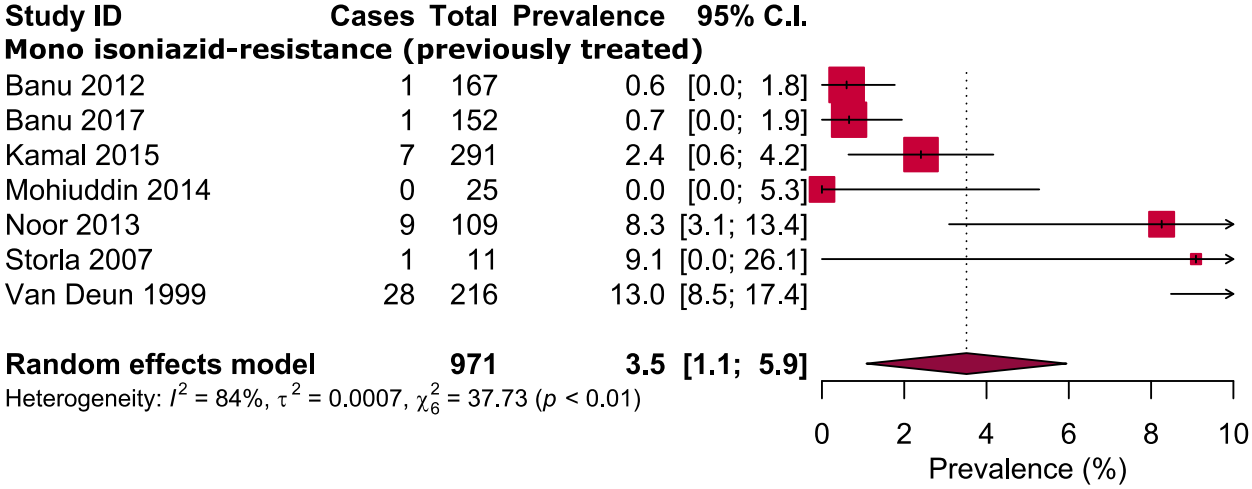
D


Study ID Cases Total Prevalence 95% C.I.
Mono ethambutol-resistance (newly diagnosed)
Banu 2012 1 22 4.5 [0.0; 13.2]
Banu 2017 6 1754 0.3 [0.1; 0.6]
Kamal 2015 2 1049 0.2 [0.0; 0.5]
Mohiuddin 2014 8 167 4.8 [1.6; 8.0]
Storla 2007 1 84 1.2 [0.0; 3.5]
Van Deun 1999 0 429 0.0 [0.0; 0.3]
Random effects model 3505 0.3 [0.0; 0.6]
Heterogeneity: I^2 = 58%, τ^2 < 0.0001, χ^2_5 = 11.87 (p = 0.04)
0 0.5 1 1.5 2
Prevalence (%)

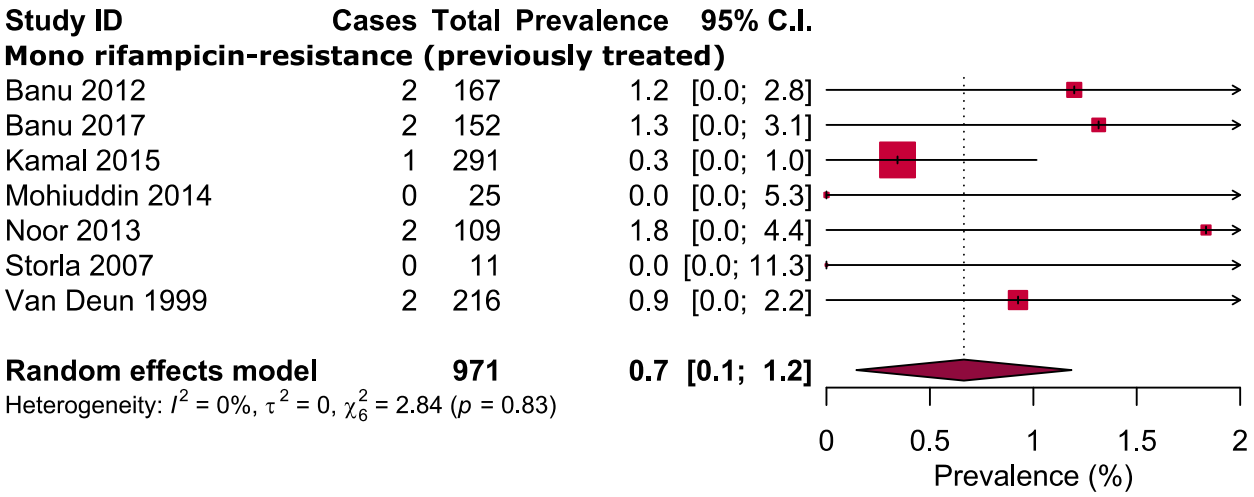
E


Study ID Cases Total Prevalence 95% C.I.
Mono streptomycin-resistance (previously treated)
Banu 2012 6 167 3.6 [0.8; 6.4]
Banu 2017 19 152 12.5 [7.2; 17.8]
Kamal 2015 21 291 7.2 [4.2; 10.2]
Mohiuddin 2014 2 25 8.0 [0.0; 18.6]
Storla 2007 1 11 9.1 [0.0; 26.1]
Van Deun 1999 10 216 4.6 [1.8; 7.4]
Random effects model 862 6.5 [3.9; 9.1]
Heterogeneity: I^2 = 52%, τ^2 = 0.0005, χ^2_5 = 10.44 (p = 0.06)
0 5 10 15 20
Prevalence (%)

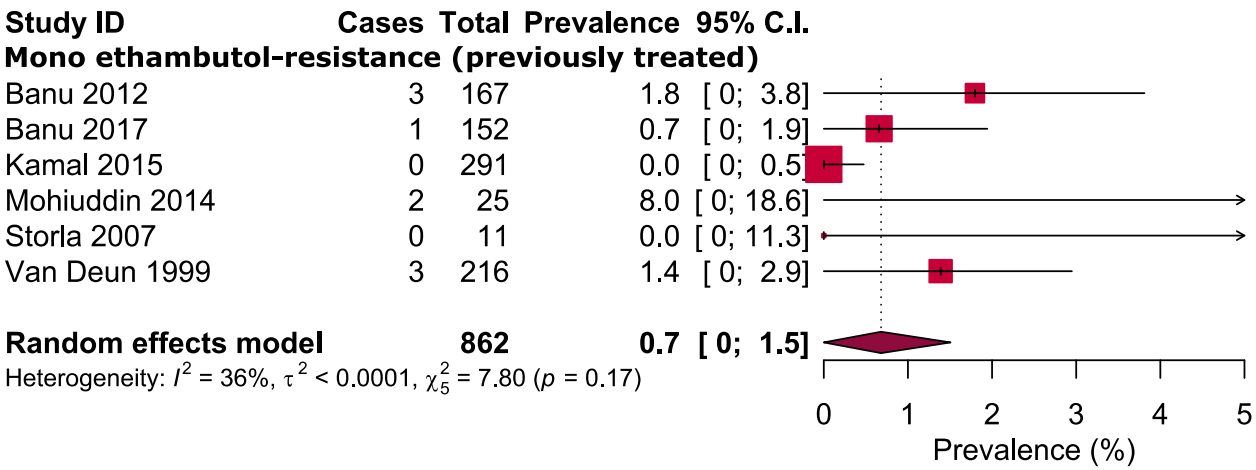
F


Study ID Cases Total Prevalence 95% C.I.
Mono isoniazid-resistance (previously treated)
Banu 2012 1 167 0.6 [0.0; 1.8]
Banu 2017 1 152 0.7 [0.0; 1.9]
Kamal 2015 7 291 2.4 [0.6; 4.2]
Mohiuddin 2014 0 25 0.0 [0.0; 5.3]
Noor 2013 9 109 8.3 [3.1; 13.4]
Storla 2007 1 11 9.1 [0.0; 26.1]
Van Deun 1999 28 216 13.0 [8.5; 17.4]
Random effects model 971 3.5 [1.1; 5.9]
Heterogeneity: I^2 = 84%, τ^2 = 0.0007, χ^2_6 = 37.73 (p < 0.01)
0 2 4 6 8 10
Prevalence (%)

G



H



I

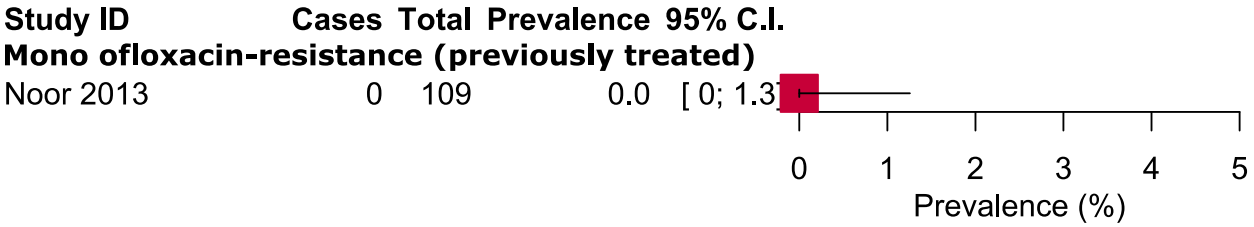
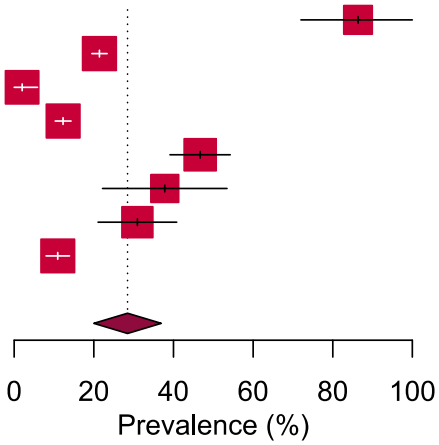


Figure S4: Mono resistance to anti-TB drugs in newly diagnosed patients: A) streptomycin, B) isoniazid, C) rifampicin, and D) ethambutol and mono resistance to anti- TB drugs in previously treated patients: E) streptomycin, F) isoniazid, G) rifampicin, H) ethambutol, and I) ofloxacin.

A

Study ID	Cases	Total	Prevalence	95% C.I.
Any drug-resistance (newly diagnosed)				
Banu 2012	19	22	86.4	[72.0; 100.0]
Banu 2017	376	1754	21.4	[19.5; 23.4]
Iqbal 2013	1	50	2.0	[0.0; 5.9]
Kamal 2015	129	1049	12.3	[10.3; 14.3]
Mohiuddin 2014	78	167	46.7	[39.1; 54.3]
Mottalib 2011	14	37	37.8	[22.2; 53.5]
Storla 2007	26	84	31.0	[21.1; 40.8]
Van Deun 1999	47	429	11.0	[8.0; 13.9]
Random effects model		**3592**	**28.5**	**[20.0; 37.0]**

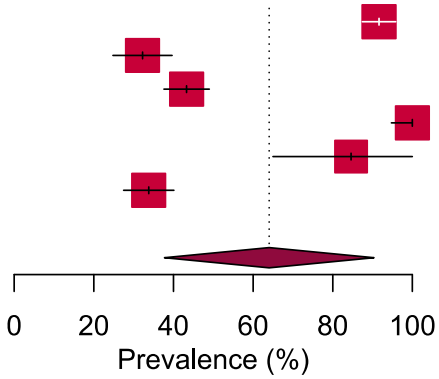
Heterogeneity: I^2 = 97%, τ^2 = 0.0132, χ^2_7 = 277.23 (p < 0.01)



B

Study ID	Cases	Total	Prevalence	95% C.I.
Any drug-resistance (previously treated)				
Banu 2012	153	167	91.6	[87.4; 95.8]
Banu 2017	49	152	32.2	[24.8; 39.7]
Kamal 2015	126	291	43.3	[37.6; 49.0]
Mohiuddin 2014	25	25	100.0	[94.7; 100.0]
Mottalib 2011	11	13	84.6	[65.0; 100.0]
Van Deun 1999	73	216	33.8	[27.5; 40.1]
Random effects model		**864**	**64.1**	**[37.8; 90.3]**

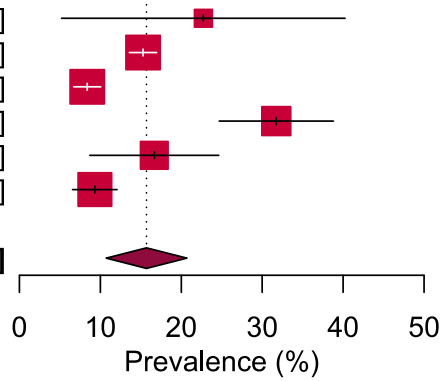
Heterogeneity: I^2 = 99%, τ^2 = 0.1057, χ^2_5 = 537.93 (p < 0.01)



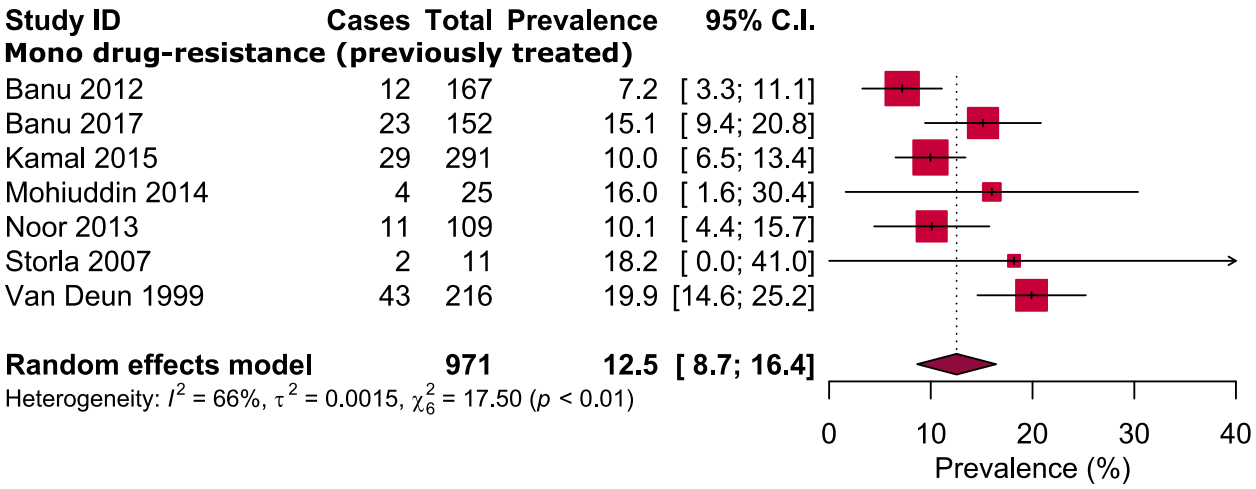
C

Study ID	Cases	Total	Prevalence	95% C.I.
Mono drug-resistance (newly diagnosed)				
Banu 2012	5	22	22.7	[5.2; 40.2]
Banu 2017	268	1754	15.3	[13.6; 17.0]
Kamal 2015	88	1049	8.4	[6.7; 10.1]
Mohiuddin 2014	53	167	31.7	[24.7; 38.8]
Storla 2007	14	84	16.7	[8.7; 24.6]
Van Deun 1999	40	429	9.3	[6.6; 12.1]
Random effects model		**3505**	**15.7**	**[10.7; 20.7]**

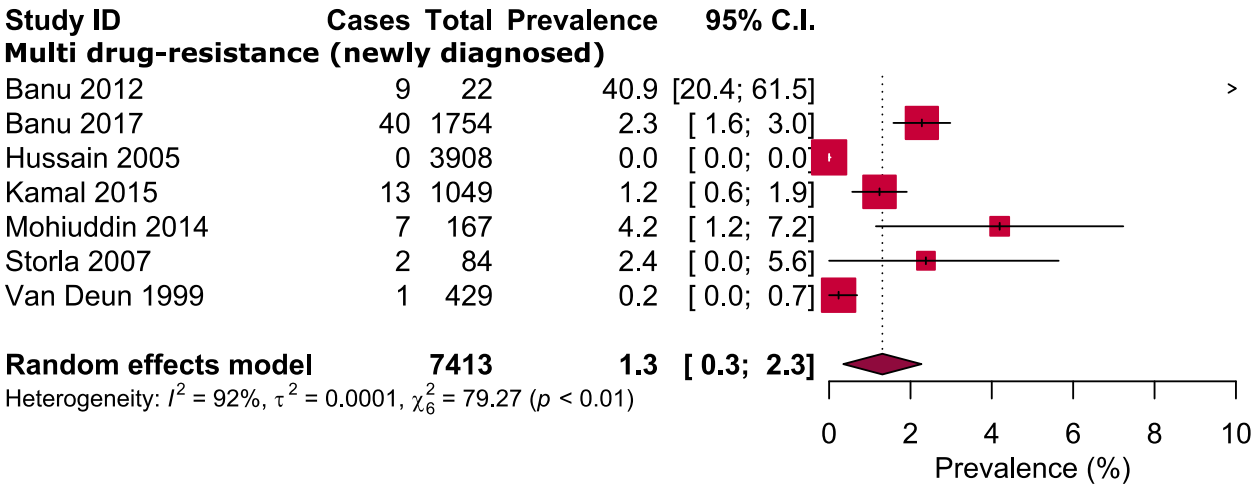
Heterogeneity: I^2 = 93%, τ^2 = 0.0029, χ^2_5 = 68.79 (p < 0.01)



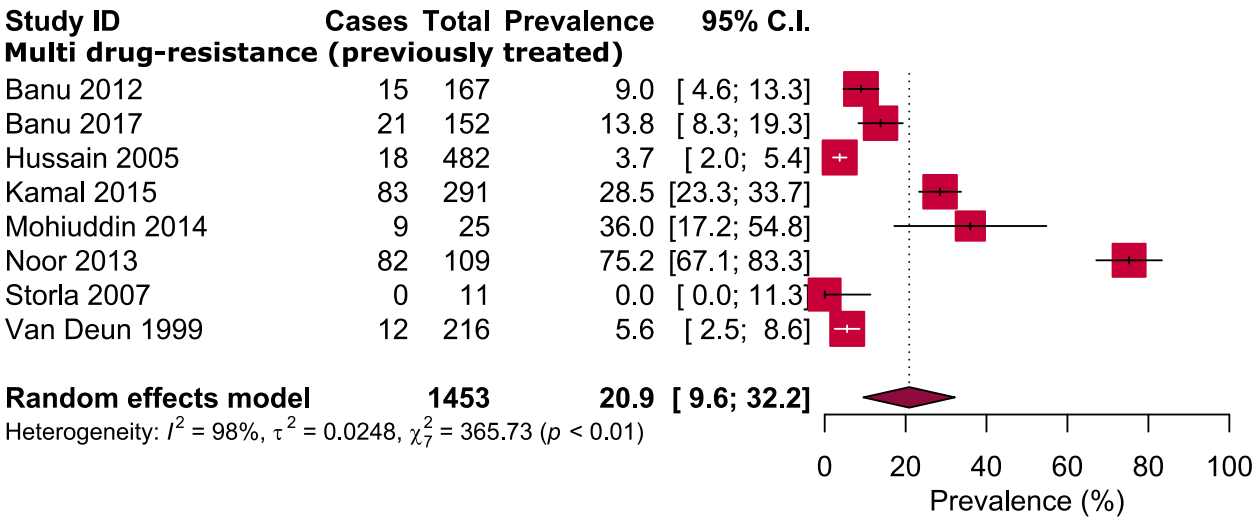
D


Study ID Cases Total Prevalence 95% C.I.
Mono drug-resistance (previously treated)
Banu 2012 12 167 7.2 [3.3; 11.1]
Banu 2017 23 152 15.1 [9.4; 20.8]
Kamal 2015 29 291 10.0 [6.5; 13.4]
Mohiuddin 2014 4 25 16.0 [1.6; 30.4]
Noor 2013 11 109 10.1 [4.4; 15.7]
Storla 2007 2 11 18.2 [0.0; 41.0]
Van Deun 1999 43 216 19.9 [14.6; 25.2]
Random effects model 971 12.5 [8.7; 16.4]
Heterogeneity: I^2 = 66%, τ^2 = 0.0015, χ^2_6 = 17.50 (p < 0.01)
0 10 20 30 40
Prevalence (%)

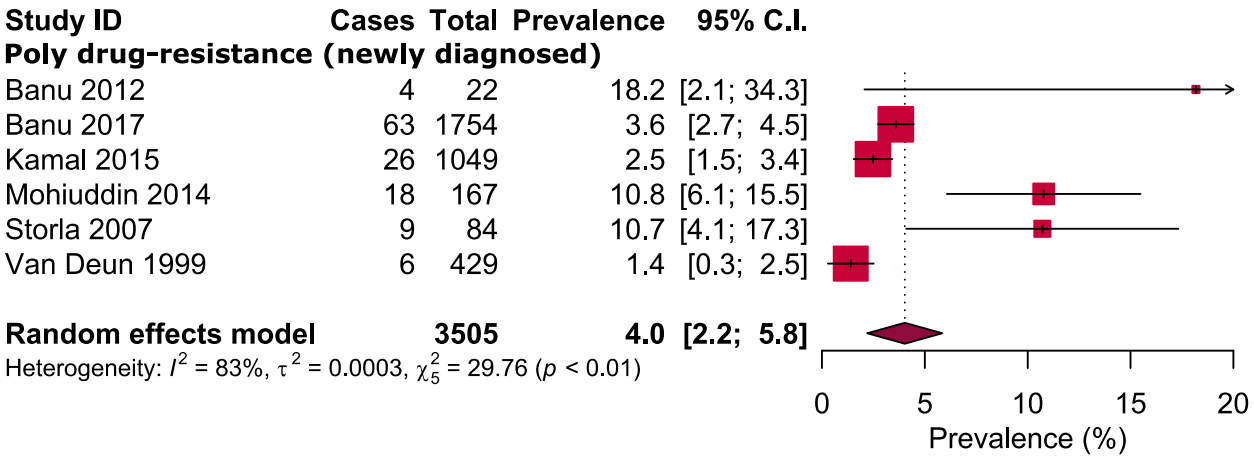
E


Study ID Cases Total Prevalence 95% C.I.
Multi drug-resistance (newly diagnosed)
Banu 2012 9 22 40.9 [20.4; 61.5]
Banu 2017 40 1754 2.3 [1.6; 3.0]
Hussain 2005 0 3908 0.0 [0.0; 0.0]
Kamal 2015 13 1049 1.2 [0.6; 1.9]
Mohiuddin 2014 7 167 4.2 [1.2; 7.2]
Storla 2007 2 84 2.4 [0.0; 5.6]
Van Deun 1999 1 429 0.2 [0.0; 0.7]
Random effects model 7413 1.3 [0.3; 2.3]
Heterogeneity: I^2 = 92%, τ^2 = 0.0001, χ^2_6 = 79.27 (p < 0.01)
0 2 4 6 8 10
Prevalence (%)

F


Study ID Cases Total Prevalence 95% C.I.
Multi drug-resistance (previously treated)
Banu 2012 15 167 9.0 [4.6; 13.3]
Banu 2017 21 152 13.8 [8.3; 19.3]
Hussain 2005 18 482 3.7 [2.0; 5.4]
Kamal 2015 83 291 28.5 [23.3; 33.7]
Mohiuddin 2014 9 25 36.0 [17.2; 54.8]
Noor 2013 82 109 75.2 [67.1; 83.3]
Storla 2007 0 11 0.0 [0.0; 11.3]
Van Deun 1999 12 216 5.6 [2.5; 8.6]
Random effects model 1453 20.9 [9.6; 32.2]
Heterogeneity: I^2 = 98%, τ^2 = 0.0248, χ^2_7 = 365.73 (p < 0.01)
0 20 40 60 80 100
Prevalence (%)

G



H

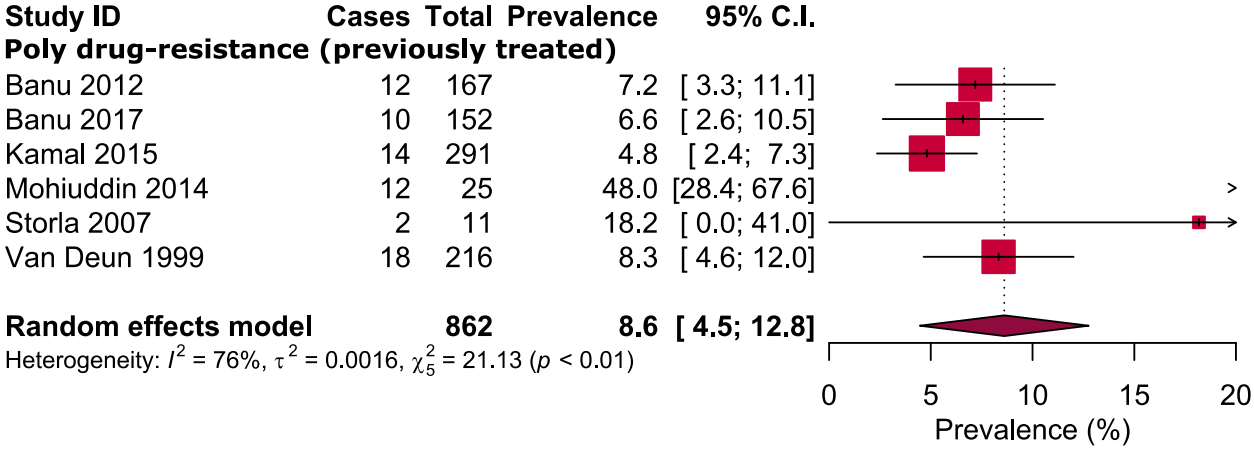
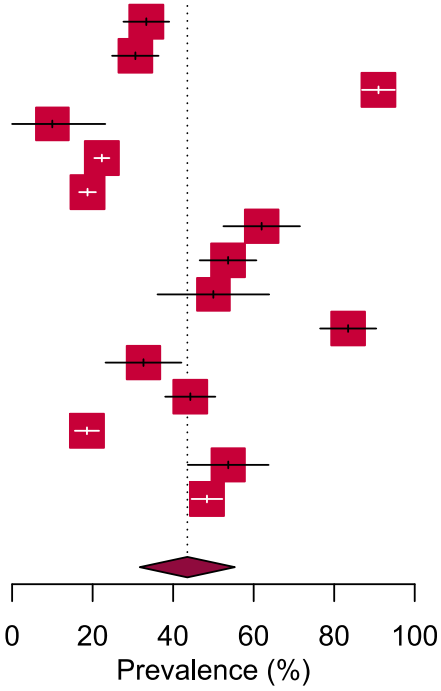


Figure S5: Overall DRs in newly diagnosed and previously treated TB patients. A) Any-DR in newly diagnosed patients, B) any-DR in previously treated patients, C) mono-DR in newly diagnosed patients, D) mono-DR in previously treated patients, E) multi-DR in newly diagnosed patients, F) multi-DR in previously treated patients, G) poly-DR in newly diagnosed patients, and H) poly-DR in previously treated patients.

A

Study ID	Cases	Total	Prevalence	95% C.I.
Any drug-resistance (Excluding low-quality studies)				
Afroz 2013	88	264	33.3	[27.6; 39.0]
Banu 2010	75	245	30.6	[24.8; 36.4]
Banu 2012	172	189	91.0	[86.9; 95.1]
Banu 2013	2	20	10.0	[0.0; 23.1]
Banu 2017	425	1906	22.3	[20.4; 24.2]
Kamal 2015	251	1340	18.7	[16.6; 20.8]
Khatun 2017	62	100	62.0	[52.5; 71.5]
Mohiuddin 2014	103	192	53.6	[46.6; 60.7]
Mottalib 2011	25	50	50.0	[36.1; 63.9]
Noor 2013	91	109	83.5	[76.5; 90.5]
Storla 2007	31	95	32.6	[23.2; 42.1]
Uddin 2018	108	244	44.3	[38.0; 50.5]
Van Deun 1999	120	645	18.6	[15.6; 21.6]
Wadud 2009	51	95	53.7	[43.7; 63.7]
Zaman 2005	318	657	48.4	[44.6; 52.2]
Random effects model		**6151**	**43.5**	**[31.7; 55.3]**

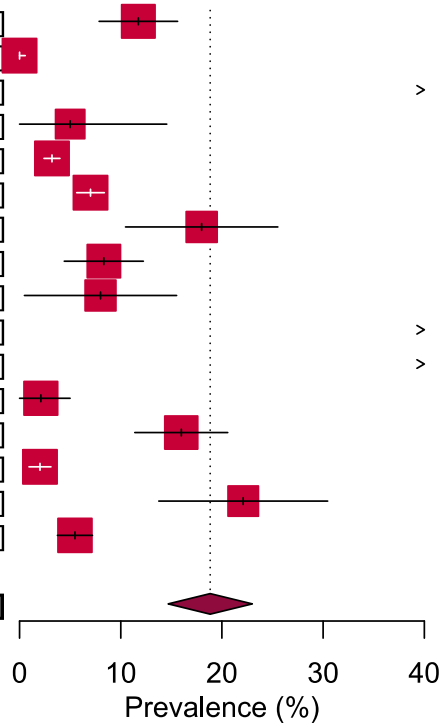
Heterogeneity: I^2 = 99%, τ^2 = 0.0528, χ^2_{14} = 1543.70 (p < 0.01)



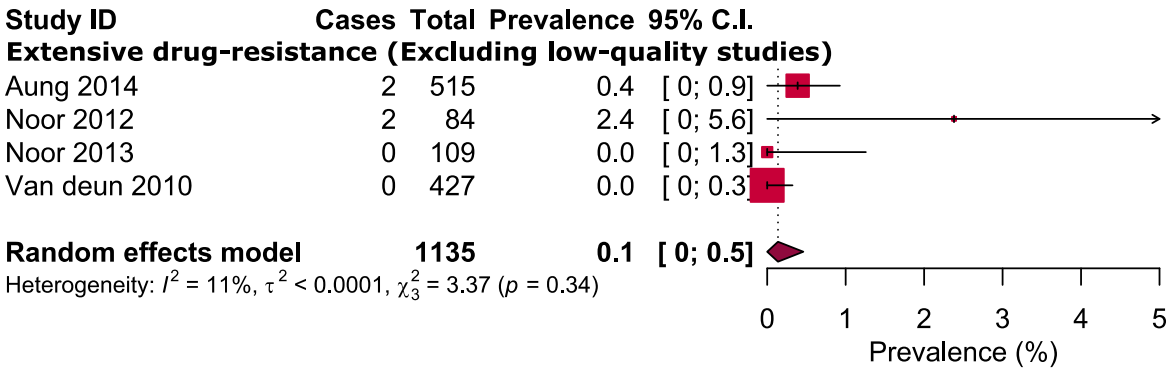
B

Study ID	Cases	Total	Prevalence	95% C.I.
Multi drug-resistance (Excluding low-quality studies)				
Afroz 2013	31	264	11.7	[7.9; 15.6]
Banu 2010	0	245	0.0	[0.0; 0.6]
Banu 2012	139	189	73.5	[67.3; 79.8]
Banu 2013	1	20	5.0	[0.0; 14.6]
Banu 2017	61	1906	3.2	[2.4; 4.0]
Kamal 2015	94	1340	7.0	[5.6; 8.4]
Khatun 2017	18	100	18.0	[10.5; 25.5]
Mohiuddin 2014	16	192	8.3	[4.4; 12.2]
Mottalib 2011	4	50	8.0	[0.5; 15.5]
Noor 2012	59	84	70.2	[60.5; 80.0]
Noor 2013	82	109	75.2	[67.1; 83.3]
Storla 2007	2	95	2.1	[0.0; 5.0]
Uddin 2018	39	244	16.0	[11.4; 20.6]
Van Deun 1999	13	645	2.0	[0.9; 3.1]
Wadud 2009	21	95	22.1	[13.8; 30.4]
Zaman 2005	36	657	5.5	[3.7; 7.2]
Random effects model		**6235**	**18.8**	**[14.7; 23.0]**

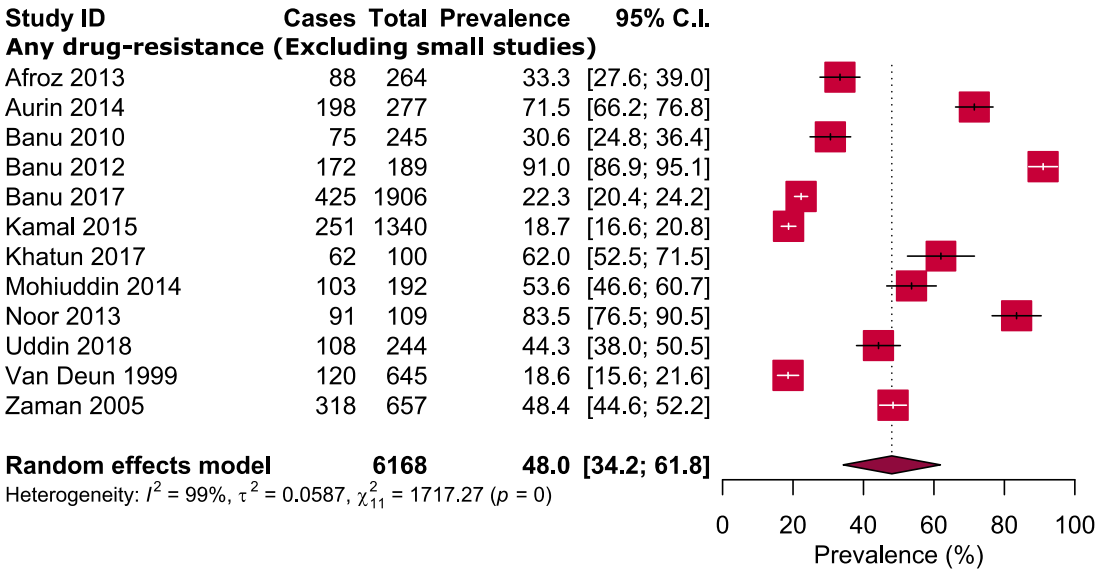
Heterogeneity: I^2 = 99%, τ^2 = 0.0064, χ^2_{15} = 1217.58 (p < 0.01)



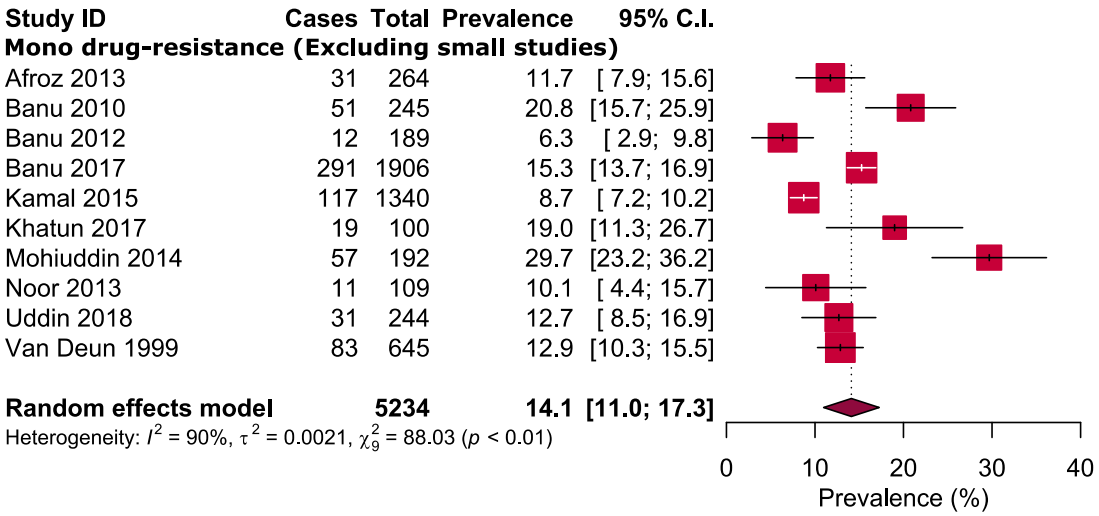
C


Study ID Cases Total Prevalence 95% C.I.
Extensive drug-resistance (Excluding low-quality studies)
Aung 2014 2 515 0.4 [0; 0.9]
Noor 2012 2 84 2.4 [0; 5.6]
Noor 2013 0 109 0.0 [0; 1.3]
Van deun 2010 0 427 0.0 [0; 0.3]
Random effects model 1135 0.1 [0; 0.5]
Heterogeneity: I^2 = 11%, τ^2 < 0.0001, χ^2_3 = 3.37 (p = 0.34)
0 1 2 3 4 5
Prevalence (%)

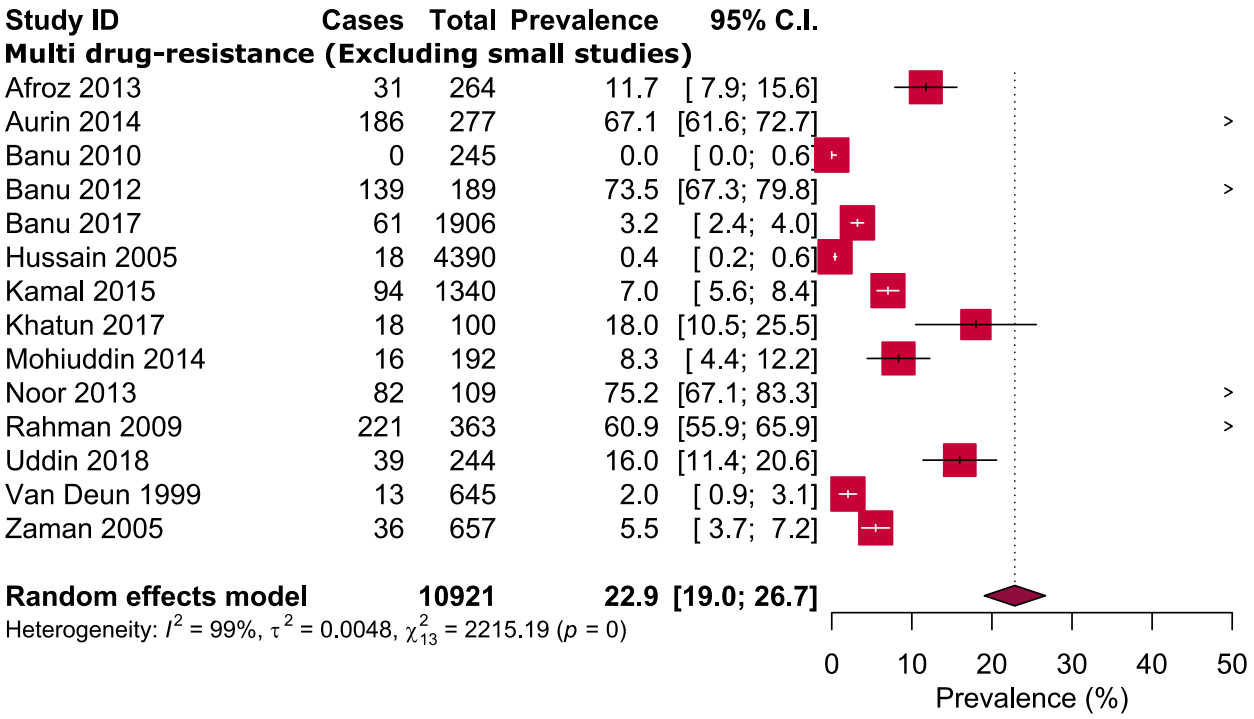
D


Study ID Cases Total Prevalence 95% C.I.
Any drug-resistance (Excluding small studies)
Afroz 2013 88 264 33.3 [27.6; 39.0]
Aurin 2014 198 277 71.5 [66.2; 76.8]
Banu 2010 75 245 30.6 [24.8; 36.4]
Banu 2012 172 189 91.0 [86.9; 95.1]
Banu 2017 425 1906 22.3 [20.4; 24.2]
Kamal 2015 251 1340 18.7 [16.6; 20.8]
Khatun 2017 62 100 62.0 [52.5; 71.5]
Mohiuddin 2014 103 192 53.6 [46.6; 60.7]
Noor 2013 91 109 83.5 [76.5; 90.5]
Uddin 2018 108 244 44.3 [38.0; 50.5]
Van Deun 1999 120 645 18.6 [15.6; 21.6]
Zaman 2005 318 657 48.4 [44.6; 52.2]
Random effects model 6168 48.0 [34.2; 61.8]
Heterogeneity: I^2 = 99%, τ^2 = 0.0587, χ^2_{11} = 1717.27 (p = 0)
0 20 40 60 80 100
Prevalence (%)

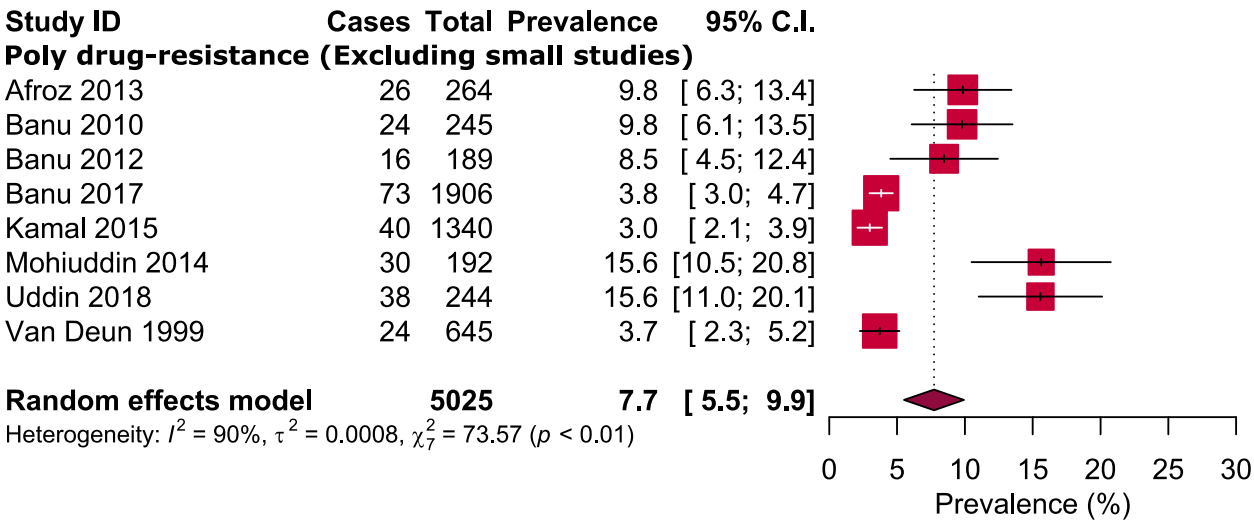
E


Study ID Cases Total Prevalence 95% C.I.
Mono drug-resistance (Excluding small studies)
Afroz 2013 31 264 11.7 [7.9; 15.6]
Banu 2010 51 245 20.8 [15.7; 25.9]
Banu 2012 12 189 6.3 [2.9; 9.8]
Banu 2017 291 1906 15.3 [13.7; 16.9]
Kamal 2015 117 1340 8.7 [7.2; 10.2]
Khatun 2017 19 100 19.0 [11.3; 26.7]
Mohiuddin 2014 57 192 29.7 [23.2; 36.2]
Noor 2013 11 109 10.1 [4.4; 15.7]
Uddin 2018 31 244 12.7 [8.5; 16.9]
Van Deun 1999 83 645 12.9 [10.3; 15.5]
Random effects model 5234 14.1 [11.0; 17.3]
Heterogeneity: I^2 = 90%, τ^2 = 0.0021, χ^2_9 = 88.03 (p < 0.01)
0 10 20 30 40
Prevalence (%)

F


Study ID Cases Total Prevalence 95% C.I.
Multi drug-resistance (Excluding small studies)
Afroz 2013 31 264 11.7 [7.9; 15.6]
Aurin 2014 186 277 67.1 [61.6; 72.7]
Banu 2010 0 245 0.0 [0.0; 0.6]
Banu 2012 139 189 73.5 [67.3; 79.8]
Banu 2017 61 1906 3.2 [2.4; 4.0]
Hussain 2005 18 4390 0.4 [0.2; 0.6]
Kamal 2015 94 1340 7.0 [5.6; 8.4]
Khatun 2017 18 100 18.0 [10.5; 25.5]
Mohiuddin 2014 16 192 8.3 [4.4; 12.2]
Noor 2013 82 109 75.2 [67.1; 83.3]
Rahman 2009 221 363 60.9 [55.9; 65.9]
Uddin 2018 39 244 16.0 [11.4; 20.6]
Van Deun 1999 13 645 2.0 [0.9; 3.1]
Zaman 2005 36 657 5.5 [3.7; 7.2]
Random effects model 10921 22.9 [19.0; 26.7]
Heterogeneity: I^2 = 99%, τ^2 = 0.0048, χ^2_{13} = 2215.19 (p = 0)
0 10 20 30 40 50
Prevalence (%)

G


Study ID Cases Total Prevalence 95% C.I.
Poly drug-resistance (Excluding small studies)
Afroz 2013 26 264 9.8 [6.3; 13.4]
Banu 2010 24 245 9.8 [6.1; 13.5]
Banu 2012 16 189 8.5 [4.5; 12.4]
Banu 2017 73 1906 3.8 [3.0; 4.7]
Kamal 2015 40 1340 3.0 [2.1; 3.9]
Mohiuddin 2014 30 192 15.6 [10.5; 20.8]
Uddin 2018 38 244 15.6 [11.0; 20.1]
Van Deun 1999 24 645 3.7 [2.3; 5.2]
Random effects model 5025 7.7 [5.5; 9.9]
Heterogeneity: I^2 = 90%, τ^2 = 0.0008, χ^2_7 = 73.57 (p < 0.01)
0 5 10 15 20 25 30
Prevalence (%)

H

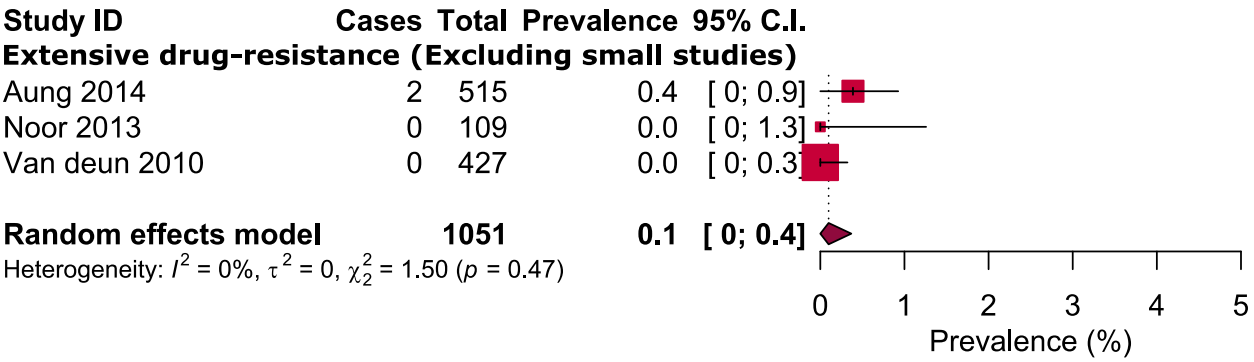


Figure S6: Sensitivity analyses: excluding low-quality studies from A) any drug-resistance, B) multi drug-resistance, C) extensive drug-resistance; excluding small studies from D) any drug-resistance, E) mono drug-resistance, F) multi drug-resistance, G) poly drug-resistance, and H) extensive drug-resistance.