Supplementary information for "Progression from latent infection to active disease in dynamic TB transmission models: a systematic review of the validity of modelling assumptions", Menzies et al.

Table S1: Search strategies used for each database.

Table S2: Publications included in full text review.

Figure S1: Histogram of included studies by publication year and subgroup.

Figure S2: Histogram of included studies by publication year and model structure.

Figure S3: Most cited sources for parameters describing progression from infection to active TB disease.

Figure S4: Model predictions for annual and cumulative incidence of active TB by years since *M. tb* infection, for groups with no individual risk factors: median for each model type.

Figure S5: Model predictions for relative risk of active TB during first and twentieth year since *M. tb* infection, for named risk factors.

Figure S6: Comparative ability of each model structure to reproduce empirical data (Sutherland 1968).

Table S3: Parameter values and fit statistics for model structures fitted to empirical data (Sutherland 1968).

Table S1: Electronic search strategy used for each database.

Database	Search strategy
Pubmed	Search terms for PubMed included (TB OR tuberculosis) AND ("Models, Theoretical" [Mesh] OR "Computer simulation" [Mesh] OR computer simulation OR (mathem* AND model) OR (mechanistic AND model*) OR "Population Dynamics" [Mesh] OR population dynamics OR system dynamics OR ((transmission OR dynamic) AND model) NOT animals. Hierarchical search structures were also used for Embase, but not for other databases.
Web of Science	(TI=TB OR TI=Tuberculosis) AND TS=((mathem* AND model*) OR computer simulation OR (mechanistic AND model*) OR population dynamics OR system dynamics OR ((transmission OR dynamic) AND model)) NOT TS=animal
Embase	TB:ti OR tuberculosis:ti AND (mathem* AND model* OR (theoretical AND ramework) OR 'models theoretical'/exp OR 'models theoretical' OR 'computer simulation'/exp OR 'computer simulation' OR 'mechanistic model' OR 'population dynamics'/exp OR 'population dynamics' OR 'system dynamics' OR 'transmission model' OR 'dynamic model') NOT ('animal'/exp OR 'animal')
Biosis	(TI=TB OR TI=Tuberculosis) AND TS=((mathem* AND model*) OR computer simulation OR (mechanistic AND model*) OR population dynamics OR system dynamics OR ((transmission OR dynamic) AND model)) NOT TS=animal
Cochrane Library	(TB OR Tuberculosis) AND (Models, Theoretical [MeSH] OR Computer Simulation [Mesh] OR Population Dynamics [MeSH] OR (mathem* and model*) OR ((transmission OR dynamic) AND model*) OR population dynamics OR system dynamics

Table S2: Publications included in full text review.

Year	Authors	Title	Journal	Volume	Issue	Pages
1962	Waaler H, Geser A and Anderson S	The use of mathematical models in the study of the epidemiology of tuberculosis	Am J Public Health N	52	6	1002-1013
1967	ReVelle CS, Lynn WR and Feldmann F	Mathematical models for the economic allocation of tuberculosis control activities in developing nations	Am Rev Respir Dis	96	5	893-909
1969	ReVelle CS, Feldmann F and Lynn WR	An optimization model of tuberculosis epidemiology	Manage Sci	16	4	B190-B211
1969	Waaler H and Piot MA	The use of an epidemiological model for estimating the effectiveness of tuberculosis control measures	B World Health Organ	41	1	75-93
1974	Waaler H, Gothl GD, Baily VJ and Nair SA	Tuberculosis in rural south India. A study of possible trends and the potential impact of antituberculosis programmes	B World Health Organ	51	3	263-271
1981	Goh EH and Fam KL	A dynamic model of tuberculosis epidemiology for Singapore	Ann Acad Med Singap	10	1	40-49
1993	Massad E, Burattini MN, Coutinho FAB, Yang HM and Raimundo SM	Modeling the interaction between AIDS and tuberculosis	Mathematical Computing and Modelling	17	9	7-21
1995	Blower SM, McLean AR, Porco TC, Small PM, Hopewell PC, Sanchez MA and Moss AR	The intrinsic transmission dynamics of tuberculosis epidemics	Nat Med	1	8	815-821
1996	Blower SM, Small PM and Hopewell PC	Control strategies for tuberculosis epidemics: New models for old problems	Science	273	5274	497-500
1997	Castillo-Chavez C and Feng Z	To treat or not to treat: The case of tuberculosis	J Math Biol	35	6	629-656
1997	Sanchez MA and Blower SM	Uncertainty and sensitivity analysis of the basic reproductive rate	Am J Epidemiol	145	12	1127-1137
1997	Vynnycky E and Fine PE	The natural history of tuberculosis: The implications of age-dependent risks of disease and the role of reinfection	Epidemiol Infect	119	2	183-201
1997	West RW and Thompson JR	Modeling the impact of HIV on the spread of tuberculosis in the united states	Math Biosci	143	1	35-60
1998	Blower, SM, Porco TC, and Lietman T	Tuberculosis: the evolution of antibiotic resistance and the design of epidemic control strategies	Innov Appl Math	---	---	1
1998	Blower SM and Gerberding JL	Understanding, predicting and controlling the emergence of drug-resistant tuberculosis: A theoretical framework	J Mol Med	76	9	624-636
1998	Dye C, Garnett GP, Sleeman K and Williams BG	Prospects for worldwide tuberculosis control under the who dots strategy	Lancet	352	9144	1886-1891
1998	Murray CJL and Salomon JA	Expanding the who tuberculosis control strategy: Rethinking the role of active case-funding	Int J Tuberc Lung Dis	2	9	S9-S15
1998	Murray CJL and Salomon JA	Modeling the impact of global tuberculosis control strategies	Proc Natl Acad Sci USA	95	23	13881-13886

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
1998	Porco TC and Blower SM	Quantifying the intrinsic transmission dynamics of tuberculosis	Theor Popul Biol	54	2	117-132
1998	Vynnycky E and Fine PE	The long-term dynamics of tuberculosis and other diseases with long series intervals: Implications of and for changing reproduction numbers	Epidemiol Infect	121	2	309-324
1999	Vynnycky E and Fine PE	Interpreting the decline in tuberculosis: The role of secular trends in effective contact	Int J Epidemiol	28	2	327-334
2000	Aparicio JP, Capurro AF, and Castillo-Chavez C	Transmission and dynamics of tuberculosis on generalized households	J Theor Biol	206	3	327-341
2000	Dye C and Williams B	Criteria for the control of drug-resistant tuberculosis	P Natl Acad Sci USA	97	14	8180-8150
2000	Feng Z, Castillo-Chavez C and Capurro AF	A model for tuberculosis with exogenous reinfection	Theor Popul Biol	57	3	235-247
2000	Vynnycky E and Fine PE	Lifetime risks, incubation period, and serial interval of tuberculosis	Am J Epidemiol	152	3	247-263
2001	Dye C and Espinal MA	Will tuberculosis become resistant to all antibiotics?	Proc Biol Sci	268	1462	45-52
2001	Porco TC, Small PM and Blower SM	Amplification dynamics: Predicting the effect of HIV on tuberculosis outbreaks	J Acq Imm Def	28	5	437-444
2001	Vynnycky E, Nagekerke N, Borgdorff MW, Soolingen DV, Van Embden JDA and Fine PE	The effect of age and study duration on the relationship between 'clustering' of DNA fingerprint patterns and the proportion of tuberculosis disease attributable to recent transmission	Epidemiol Infect	126	1	43-62
2001	Ziv E, Daley CL and Blower SM	Early therapy for latent tuberculosis infection	Am J Epidemiol	153	4	381-385
2002	Jung E, Lenhart S and Feng Z	Optimal control of treatments in two-strain tuberculosis model	Discrete Contin Dyn S	2	4	473-482
2002	Mandredi P and Salinelli E	Population induced oscillations in blended si-sei epidemiological models	IMA J Math Appl Med Biol	19	2	95-112
2002	Moghadas SM and Gumel AB	Analysis of a model for transmission dynamics of TB	Canadian Applied Mathematics Qaurterly	10	3	411-428
2002	Murphy BM, Singer BH, Anderson CJ and Kirschner D	Comparing epidemic tuberculosis in demographically distinct heterogeneous populations	Math Biosci	180	1	161-185
2002	Murray M	Determinants of cluster distribution in the molecular epidemiology of tuberculosis	P Natl Acad Sci USA	99	3	1538-1543

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2002	Pitman R, Jarman B and Coker RJ	Tuberculosis transmission and the impact of intervention on the incidence of infection	Int J Tuberc Lung Dis	6	6	485-491
2002	Raimundo SM, Yang Hsu L, Bassanezi RC and Ferreira MAC	The attracting basins and the assessment of the transmission coefficients for HIV and m. Tuberculosis infections among women inmates	J Biol Syst	10	1	61-83
2002	Song B, Castillo-Chavez C and Aparicio JP	Global dynamics of tuberculosis models with density dependent demography	IMA V Math	126	---	275-294
2002	Song B, Castillo-Chavez C and Aparicio JP	Tuberculosis models with fast and slow dynamics: The role of close and casual contacts	Math Biosci	180	1	187-205
2003	Currie CS, Williams BG, Cheng RC and Dye C	Tuberculosis epidemics driven by HIV: Is prevention better than cure?	AIDS	17	17	2501-2508
2003	Murphy BM, Singer BH and Kirschner D	On treatment of tuberculosis in heterogeneous populations	J Theor Biol	223	4	391-404
2003	Raimundo SM, Engel AB, Yang HM and Bassanezi RC	An approach to estimating the transmission coefficients for AIDS and for tuberculosis using mathematical models	Syst Anal Model Sim	43	4	423-442
2003	Vynnycky E, Borgdorff MW, Soolingen DV and Fine PE	Annual mycobacterium tuberculosis infection risk and interpretation of clustering statistics	Emerg Infect Dis	9	2	176-183
2004	Blower SM and Chou T	Modeling the emergence of the 'hot zones': Tuberculosis and the amplification dynamics of drug resistance	Nat Med	10	10	1111-1116
2004	Cohen T and Murray M	Modeling epidemics of multidrug-resistant m. Tuberculosis of heterogeneous fitness	Nat Med	10	10	1117-1121
2004	Gomes MG, Franco AO, Gomes MC and Medley GF	The reinfection threshold promotes variability in tuberculosis epidemiology and vaccine efficacy	Proc Biol Sci	271	1539	617-623
2004	Guwatudde D, Debanne SM, Diaz M, King C and Whalen CC	A re-examination of the potential impact of preventive therapy on the public health problem of tuberculosis in contemporary sub-Saharan Africa	Prev Med	39	5	1036-1046
2004	Moghadas SM and Alexander ME	Exogenous reinfection and resurgence of tuberculosis: A theoretical framework	J Biol Syst	12	2	231-247
2004	Nishiura H, Patanarapelery K and Tang M	Predicting the future trend of drug-resistant TB in Thailand: Assessing the impact of control strategies	SE Asian J Trop Med	35	3	649-656
2004	Perelman MI, Marchuk GI, Borisov SE, Kazennyy BY, Avilov KK, Karkach AS and Romanyukha AA	Tuberculosis epidemiology in Russia: The mathematical model and data analysis	Russ J Numer Anal Math Modelling	19	4	305-314
2004	Singer BH and Kirschner D	Influence of backward bifurcation on interpretation of r(0) in a model of epidemic tuberculosis with reinfection	Math Biosci Eng	1	1	81-93
2004	Ziv E, Daley CL and Blower SM	Potential public health impact of new tuberculosis vaccines	Emerg Infect Dis	10	9	1529-1535

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2005	Atun RA, Lebcir RM, Drobniewski F and Coker RJ	Impact of an effective multidrug-resistant tuberculosis control programme in the setting of an immature HIV epidemic: System dynamics simulation model	Int J STD AIDS	16	8	560-570
2005	Currie CS, Floyd K, Williams BG and Dye C	Cost, affordability and cost-effectiveness of strategies to control tuberculosis in countries with high HIV prevalence	BMC Public Health	5	1	130
2005	Sematimba A, Mugisha JYT and Luboobi LS	Mathematical models for the dynamics of tuberculosis in density-dependent populations: The case of internally displaced peoples' camps (IDPCS) in Uganda	J Math Stat	1	3	217-224
2005	Williams B, Granich R, Chauhan LS, Dharmshaktu NS and Dye C	The impact of HIV/AIDS on the control of tuberculosis in India	P Natl Acad Sci USA	102	27	9619-9624
2006	Cohen T, Lipsitch M, Walensky RP and Murray M	Beneficial and perverse effects of isoniazid preventive therapy for latent tuberculosis infection in HIV-tuberculosis coinfected populations	P Natl Acad Sci USA	103	18	7042-7047
2006	Colijn C, Cohen T and Murray M	Mathematical models of tuberculosis: Accomplishments and future challenges	BIOMAT	---	---	123-148
2006	Dowdy D, Chaisson RE, Moulton LH and Dorman SE	The potential impact of enhanced diagnostic techniques for tuberculosis driven by HIV: A mathematical model	AIDS	20	5	751-762
2006	Hughes GR, Currie CS and Corbett EL	Modeling tuberculosis in areas of high HIV prevalence	Proceedings of the 38th Winter Simulation Conference	---	---	459-465
2006	Porco TC, Lewis B, Marseille E, Grinsdale J, Flood JM and Royce SE	Cost-effectiveness of tuberculosis evaluation and treatment of newly-arrived immigrants	BMC Public Health	6	1	157
2006	Raimundo† SM and Yang‡ HM	Transmission of tuberculosis with exogenous re-infection and endogenous reactivation	Math Popul Stud	13	4	181-203
2006	Resch SC, Salomon JA, Murray M and Weinstein MC	Cost-effectiveness of treating multidrug-resistant tuberculosis	PLoS Med	3	7	e241
2006	Salomon JA, Lloyd-Smith JO, Getz WM, Resch S, Sanchez MS, Porco TC and Borgdorff MW	Prospects for advancing tuberculosis control efforts through novel therapies	PLoS Med	3	8	e273
2007	Atun RA, Lebcir RM, Drobniewski F, McKee M and Coker RJ	High coverage with HAART is required to substantially reduce the number of deaths from tuberculosis: System dynamics simulation	Int J STD AIDS	18	4	267-273
2007	Atun RA, Lebcir RM, McKee M, Habicht J and Coker RJ	Impact of joined-up HIV harm reduction and multidrug resistant tuberculosis control programmes in Estonia: System dynamics simulation model	Health Policy	81	2	207-217
2007	Avilov KK and Romanyukha AA	Mathematical modeling of tuberculosis propagation and patient detection	Automat Rem Contr	68	9	1604-1617

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2007	Basu S, Andrews JR, Poolman EM, Gandhi NR, Shah NS, Moll A, Moodley P, Galvani AP and Friedland GH	Prevention of nosocomial transmission of extensively drug-resistant tuberculosis in rural South African district hospitals: An epidemiological modelling study	Lancet	370	9597	1500-1507
2007	Cohen T, Colijn C, Finklea B and Murray M	Exogenous re-infection and the dynamics of tuberculosis epidemics: Local effects in a network model of transmission	J R Soc Interface	4	14	523-531
2007	Colijn C, Cohen T and Murray M	Emergent heterogeneity in declining tuberculosis epidemics	J Theor Biol	247	4	765-774
2007	Gomes MC, Rodrigues P, Hilker FM, Mantilla-Beniers NB, Muehlen M, Paulo AC and Medley GF	Implications of partial immunity for tuberculosis control by post-exposure interventions	J Theor Biol	248	4	608-617
2007	Gomes PD, Leal-Toledo RCP and Cunha CEC	Dynamics of tuberculosis under dots strategy	BIOMAT	---	---	161-180
2007	Jia Z-w, Li X-w, Jin Z, Feng D and Cao W-c	A model for tuberculosis with various latent periods	SNPD	1	---	422-425
2007	Ma C, Zhang F and Jin Z	Global stability of a tuberculosis model with vertical transmission	SNPD	3	---	508-511
2007	Okuonghae D, Korobeinikov A	Dynamics of tuberculosis: the effect of direct observation therapy strategy (DOTS) in Nigeria	Math Model Nat Pheno	2	1	113-128
2007	Rodrigues P, Gomes MG and Rebelo C	Drug resistance in tuberculosis--a reinfection model	Theor Popul Biol	71	2	196-212
2008	Bacaer N, Ouifki R, Pretorius C, Wood R and Williams B	Modeling the joint epidemics of TB and HIV in a South African township	J Math Biol	57	4	557-593
2008	Basu S and Galvani AP	The transmission and control of XDR TB in South Africa: An operations research and mathematical modelling approach	Epidemiol Infect	136	12	1585-1598
2008	Basu S, Orenstein E and Galvani AP	The theoretical influence of immunity between strain groups on the progression of drug-resistant tuberculosis epidemics	J Infect Dis	198	10	1502-1513
2008	Bhunu CP, Garira W, Mukandavire Z and Magombedze G	Modelling the effects of pre-exposure and post-exposure vaccines in tuberculosis control	J Theor Biol	254	3	633-649
2008	Bhunu CP, Garira W, Mukandavire Z and Zimba M	Tuberculosis transmission model with chemoprophylaxis and treatment	Bull Math Biol	70	4	1163-1191
2008	Cohen T, Colijn C and Murray M	Modeling the effects of strain diversity and mechanisms of strain competition on the potential performance of new tuberculosis vaccines	P Natl Acad Sci USA	105	42	16302-16307
2008	Cohen T, Colijn C, Finklea B, Wright A, Zignol M, Pym A and Murray M	Are survey-based estimates of the burden of drug resistant TB too low? Insight from a simulation study	PLoS One	3	6	e2363
2008	Dowdy D, Chaisson RE, Maartens G, Corbett EL and Dorman SE	Impact of enhanced tuberculosis diagnosis in South Africa: A mathematical model of expanded culture and drug susceptibility testing	P Natl Acad Sci USA	105	32	11293-11298

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2008	Dye C and Williams BG	Eliminating human tuberculosis in the twenty-first century	J R Soc Interface	5	23	653-662
2008	Gumel AB and Song B	Existence of multiple-state equilibria for a MDR model of Mycobacterium tuberculosis	Math Biosci	5	3	437-455
2008	Jia ZW, Tang GY, Jin Z, Dye C, Vlas SJ, Li XW, Feng D, Fang LQ, Zhao WJ and Cao WC	Modeling the impact of immigration on the epidemiology of tuberculosis	Theor Popul Biol	73	3	437-448
2008	Legrand J, Sanchez A, Le Pont F, Camacho L and Larouze B	Modeling the impact of tuberculosis control strategies in highly endemic overcrowded prisons	PLoS One	3	5	e2100
2008	Lin HH, Murray M, Cohen T, Colijn C and Ezzati M	Effects of smoking and solid-fuel use on COPD, lung cancer, and tuberculosis in china: A time-based, multiple risk factor, modelling study	Lancet	372	9648	1472-1483
2008	Liu L, Zhou Y and Wu J	Global dynamics in a TB model incorporating case detection and two treatment stages	Rocky Mt J Math	38	5	1541-1559
2008	Long EF, Vaidya NK and Brandeau ML	Controlling co-epidemics: Analysis of HIV and tuberculosis infection dynamics	Oper Res	56	6	1366-1381
2008	Okuonghae D and Aihie VU	Case detection and dots in Nigeria: Its effect on TB dynamics	J Biol Syst	16	1	1-31
2008	Sanchez MA, Lloyd-Smith JO, Porco TC, Williams B, Borgdorff MW, Mansoer J, Salomon JA and Getz WM	Impact of HIV on novel therapies for tuberculosis control	AIDS	22	8	963-972
2008	Sharomi OY, Podder CN and Gumel AB	Mathematical analysis of the transmission dynamics of HIV/TB coinfection in the presence of treatment	Math Biosci Eng	5	1	145-174
2008	Vynnycky E, Borgdorff MW, Leung CC, Tam CM and Fine PE	Limited impact of tuberculosis control in Hong Kong: Attributable to high risks of reactivation disease	Epidemiol Infect	136	7	943-952
2008	Zhou Y, Khan K, Feng Z and Wu J	Projection of tuberculosis incidence with increasing immigration trends	J Theor Biol	254	2	215-228
2009	Abu-Raddad LJ, Sabatelli L, Achterberg JT, Sugimoto JD, Longini IM, Dye C and Halloran ME	Epidemiological benefits of more effective tuberculosis vaccines, drugs, and diagnostics	P Natl Acad Sci USA	106	3	13980-13985
2009	Adetunde IA	The mathematical models of the dynamic behaviour of tuberculosis disease in the upper east region of the northern part of Ghana: A case study of bawku	Current Research in Tuberculosis	1	1	1-6
2009	Basu S and Galvani AP	The evolution of tuberculosis virulence	Bull Math Biol	71	5	1073-1088
2009	Basu S, Friedland GH, Medlock J, Andrews JR, Shah NS, Gandhi NR, Moll AP, Moodley P, Sturm AW and Galvani AP	Averting epidemics of extensively drug-resistant tuberculosis	P Natl Acad Sci USA	106	18	7672-7677

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2009	Basu S, Maru D, Poolman E and Galvani AP	Primary and secondary tuberculosis preventive treatment in HIV clinics: Simulating alternative strategies	Int J Tuberc Lung Dis	13	5	652-658
2009	Bhunu CP and Garira W	A two strain tuberculosis transmission model with therapy and quarantine	Math Comput Model	14	3	291-312
2009	Bhunu CP and Gurira W	Modelling the transmission of MDR and XDR tuberculosis	Advances in Disease Epidemiology	---	---	195-220
2009	Bhunu CP, Garira W and Mukandavire Z	Modeling HIV/AIDS and tuberculosis coinfection	Bull Math Biol	71	7	1745-1780
2009	Bowong S and Tewa JJ	Mathematical analysis of a tuberculosis model with differential infectivity	Commun Nonlinear Sci	14	11	4010-4021
2009	Colijn C, Cohen T and Murray M	Latent coinfection and the maintenance of strain diversity	Bull Math Biol	71	1	247-263
2009	Dowdy D	The persistence of tuberculosis in the age of dots: Reassessing the effect of case detection	B World Health Organ	87	4	296-304
2009	Gerberry DJ	Trade-off between BCG and vaccination and the ability to detect and treat latent tuberculosis	J Theor Biol	261	4	548-560
2009	Kajuguri D	Modelling the impact of TB superinfection on the dynamics of HIV-TB coinfection	Masters Thesis, Stellenbosch University	---	---	---
2009	Lebcir RM and Choudrie J	Using a decision support systems computer simulation model to examine HIV and tuberculosis: The Russian federation	International Journal of Electronic Healthcare	5	1	14-22
2009	Lebcir RM, Atun RA and Coker RJ	System dynamic simulation of treatment policies to address colliding epidemics of tuberculosis, drug resistant tuberculosis and injecting drug users driven HIV in Russia	J Oper Res Soc	61	8	1238-1248
2009	Mantilla-Beniers NB and Gomes MGM	Mycobacterial ecology as a modulator of tuberculosis vaccine success	Theor Popul Biol	75	3-Feb	142-152
2009	Mtisi E, Rwezaura H and Tchuenche JM	A mathematical analysis of malaria and tuberculosis co-dynamics	Discrete Contin Dyn S	12	4	827-864
2009	Roeger LI, Feng Z and Castillo-Chavez C	Modeling TB and HIV co-infections	Math Biosci Eng	6	4	815-837
2009	Sanchez MS, Lloyd-Smith JO, Williams BG, Porco TC, Ryan SJ, Borgdorff MW, Mansoer J, Dye C and Getz WM	Incongruent HIV and tuberculosis co-dynamics in Kenya: Interacting epidemics monitor each other	Epidemics	1	1	14-20
2009	Uys PW, van Helden PD and Hargrove JW	Tuberculosis reinfection rate as a proportion of total infection rate correlates with the logarithm of the incidence rate: A mathematical model	J R Soc Interface	6	30	11-15

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2009	Uys PW, Warren R, van Helden PD, Murray M and Victor TC	Potential of rapid diagnosis for controlling drug-susceptible and drug-resistant tuberculosis in communities where mycobacterium tuberculosis infections are highly prevalent	J Clin Microbiol	47	5	1484-1490
2010	Bishai JD, Bishai WR and Bishai DM	Heightened vulnerability to MDR-TB epidemics after controlling drug-susceptible TB	PLoS One	5	9	e12843
2010	Bowong S	Optimal control of the transmission dynamics of tuberculosis	Nonlinear Dynam	61	4	729-748
2010	Bowong S and Kurths J	Modeling tuberculosis and hepatitis b co-infection	Innov Appl Math	5	6	196-242
2010	Bowong S and Kurths J	Parameter estimation based synchronization for an epidemic model with application to tuberculosis in Cameroon	Physics Letters A	374	44	4496-4505
2010	Bowong S and Tewa JJ	Global analysis of a dynamical model for transmission of tuberculosis with a general contact rate	Commun Nonlinear Sci	15	11	3621-3631
2010	Brooks-Pollock E, Cohen T and Murray M	The impact of realistic age structure in simple models of tuberculosis transmission	PLoS One	5	1	e8479
2010	Buonomo B and Lacitignola D	Analysis of a tuberculosis model with a case study in Uganda	J Biol Dyn	4	6	571-593
2010	Castillo-Chavez C, Wang X, Aparicio JP and Feng Z	On the dynamics of reinfection: The case of tuberculosis	BIOMAT	---	---	304-330
2010	Hassmiller Lich K, Osgood ND, Mahamoud A.	Using system dynamics tools to gain insight into intervention options related to the interaction between tobacco and tuberculosis	Glob Health Promot	17	Suppl 1	7-20
2010	Huo H-F, Dang S-J and Li Y-N	Stability of a two-strain tuberculosis model with general contact rate	Abstr Appl Anal	2010	---	1-31
2010	Liu L, Zhao XQ and Zhou Y	A tuberculosis model with seasonality	Bull Math Biol	72	4	931-952
2010	Liu Y and Sun Z	A new model for MDR-TB with undetected TB cases	IEEE	978	1	4244-5182
2010	Okuonghae D and Aihie VU	Optimal control measures for tuberculosis mathematical models including immigration and isolation of infective	J Biol Syst	18	1	17-54
2010	Pienaar E, Fluitt AM, Whitney SE, Freifeld AG and Viljoen HJ	A model of tuberculosis transmission and intervention strategies in an urban residential area	Comput Biol Chem	34	2	86-96
2010	Sanchez A, Lloyd-Smith JO, Getz WM and Williams B	Using mathematical models to monitor and evaluate the impact of public health interventions on epidemics: The case of the TB/HIV co-pandemic in Africa	Discrete Math Thor C	---	---	135-186
2010	Wu P, Lau EH, Cowling BJ, Leung CC, Tam CM and Leung GM	The transmission dynamics of tuberculosis in a recently developed Chinese city	PLoS One	5	5	e10468
2010	Yang HM and Raimundo SM	Assessing the effects of multiple infections and long latency in the dynamics of tuberculosis	Theor Biol Med Model	7	1	41

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2010	Yang Y, Li J, Ma Z and Liu L	Global stability of two models with incomplete treatment for tuberculosis	Chaos Soliton Fract	43	1	79-85
2010	Zhou Y and Cao H	Discrete tuberculosis models and their applications	Am Math S	57	---	83-112
2011	Basu S, Stuckler D and McKee M	Addressing institutional amplifiers in the dynamics and control of tuberculosis epidemics	Am J Trop Med Hyg	84	1	30-37
2011	Basu S, Stuckler D, Bitton A and Glantz SA	Projected effects of tobacco smoking on worldwide tuberculosis control: Mathematical modelling analysis	BMJ	343	---	d5506
2011	Bhunu CP	Mathematical analysis of a three-strain tuberculosis transmission model	Appl Math Model	35	9	4647-4660
2011	Bhunu CP, Mushayabasa S and Tchuenche JM	A theoretical assessment of the effects of smoking on the transmission dynamics of tuberculosis	Bull Math Biol	73	6	1333-1357
2011	Bowong S and Kurths J	Modeling and analysis of the transmission dynamics of tuberculosis without and with seasonality	Nonlinear Dynam	67	3	2027-2051
2011	Bowong S and Kurths J	Modeling and parameter estimation of tuberculosis with application to Cameroon	Int J Bifurcat Chaos	21	7	1999-2015
2011	de Espíndola AL, Bauch CT, Troca Cabella BC and Martinez AS	An agent-based computational model of the spread of tuberculosis	J Stat Mech-Theory E	2011	5	P05003
2011	Emvudu Y, Demasse R and Djeudeu D	Optimal control of the lost to follow up in a tuberculosis model	Comput Math Methods Med	2011	---	---
2011	Guo H and Li MY	Global stability of the endemic equilibrium of a tuberculosis model with immigration and treatment	Canadian Applied Mathematics Qaurterly	19	1	1-18
2011	Guo H and Wu J	Persistent high incidence of tuberculosis among immigrants in a low-incidence country: Impact of immigrants with early or late latency	Math Biosci Eng	8	3	695-709
2011	Guzzetta G, Ajelli M, Yang Z, Merler S, Furlanello C and Kirschner D	Modeling socio-demography to capture tuberculosis transmission dynamics in a low burden setting	J Theor Biol	289	---	197-205
2011	Hickson RI, Mercer GN and Lokuge KM	Sensitivity analysis of a model for tuberculosis	International Congress on Modeling and Simulation	---	---	926-932
2011	Jia Z, Cheng S and Jia X	A mathematical model for evaluating tuberculosis screening strategies	J Evid Based Med	4	1	48-52
2011	Li X-Z, Bhattacharya S, Yang J-Y and Martcheva M	A tuberculosis (TB) model with undetected compartment: An application to china	J Biol Syst	19	2	205-236
2011	Lin HH, Langley I, Mwenda R, Doulla B, Egwaga S, Millington KA, Mann GH, Murray M, Squire SB and Cohen T	A modelling framework to support the selection and implementation of new tuberculosis diagnostic tools	Int J Tuberc Lung Dis	15	8	996-1004

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2011	Liu Y, Sun Z, Sun G, Zhong Q, Jiang L, Zhou L, Qiao Y and Jia Z	Modeling transmission of tuberculosis with MDR and undetected cases	Discrete Dyn Nat Soc	2011	---	1-12
2011	Mellor GR, Currie CSM and Corbett EL	Incorporating household structure into a discrete-event simulation model of tuberculosis and HIV	ACM T Model Comput S	21	4	1-17
2011	Mills HL, Cohen T and Colijn C	Modelling the performance of isoniazid preventive therapy for reducing tuberculosis in HIV endemic settings: The effects of network structure	J R Soc Interface	8	63	1510-1520
2011	Okuonghae D and Omosigho SE	Analysis of a mathematical model for tuberculosis: What could be done to increase case detection	J Theor Biol	269	1	31-45
2011	Osgood N, Mahamoud A, Lich KH, Tian Y, Al-Azem A and Hoeppner V	Estimating the relative impact of early-life infection exposure on later-life tuberculosis outcomes in a Canadian sample	Res Hum Dev	8	1	26-47
2011	Oxlade O, Schwartzman K, Benedetti A, Pai M, Heymann J and Menzies D	Developing a tuberculosis transmission model that accounts for changes in population health	Med Decis Making	31	1	53-68
2011	Tewa JJ, Bowong S, Mewoli B and Kurths J	Two-patch transmission of tuberculosis	Math Popul Stud	18	3	189-205
2011	Thomas EG, Barrington HE, Lokuge KM and Mercer GN	Modelling the spread of tuberculosis, including drug resistance and HIV: A case study in Papua new guinea's western province	The ANZIAM Journal	52	1	26-45
2011	Tian Y, Alawami F, Al-Azem A, Osgood ND, Hoeppner V and Dutchyn C	A system dynamics model of tuberculosis diffusion with respect to contact tracing investigation	Proceedings -of the 2011 Winter Simulation Conference	---	---	1367-1378
2011	Whang S, Choi S and Jung E	A dynamic model for tuberculosis transmission and optimal treatment strategies in South Korea	J Theor Biol	279	1	120-131
2011	Yi N and Liu P	The analysis of stability and bifurcations for a tuberculosis model	IEEE	---	---	2104-2107
2012	Aandahl RZ, Reyes JF, Sisson SA and Tanaka MM	A model-based bayesian estimation of the rate of evolution of vntr loci in mycobacterium tuberculosis	PLoS Comput Biol	8	6	e1002573
2012	Ben-Haim Y, Dacso CC and Zetola NM	Info-gap management of public health policy for TB with HIV-prevalence and epidemiological uncertainty	BMC Public Health	12	1	1091
2012	Bhunu CP, Mushayabasa S and Smith RJ	Assessing the effects of poverty in tuberculosis transmission dynamics	Appl Math Model	36	9	4173-4185
2012	Cao H and Zhou Y	The discrete age-structured SEIT model with application to tuberculosis transmission in china	Math Comput Model	55	3-4	385-395
2012	Dowdy D, Golub JE, Chaisson RE and Saraceni V	Heterogeneity in tuberculosis transmission and the role of geographic hotspots in propagating epidemics	P Natl Acad Sci USA	109	24	9557-9562
2012	Dye C	The potential impact of new diagnostic tests on tuberculosis	Indian J Med Res	135	5	737-744

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2012	Espindola AL, Girardi D, Penna TJP, Bauch CT, Martinez AS and Cabella BCT	Exploration of the parameter space in an agent-based model of tuberculosis spread: Emergence of drug resistance in developing vs developed countries	Int J Mod Phys C	23	6	1250046
2012	Gerberry DJ and Milner FA	Could changes in national tuberculosis vaccination policies be ill-informed ?	Math Model Nat Phenom	7	3	78-98
2012	Gomes MG, Aguas R, Lopes JS, Nunes MC, Rebelo C, Rodrigues P and Struchiner CJ	How host heterogeneity governs tuberculosis reinfection?	Proc Biol Sci	279	1737	2473-2478
2012	Hickson RI, Mercer GN and Lokuge KM	A metapopulation model of tuberculosis transmission with a case study from high to low burden areas	PLoS One	7	4	e34411
2012	Hill AN, Becerra J and Castro KG	Modelling tuberculosis trends in the USA	Epidemiol Infect	140	10	1862-1872
2012	Hu X	Threshold dynamics for a tuberculosis model with seasonality	Math Biosci Eng	9	1	111-122
2012	Liao CM and Lin YJ	Assessing the transmission risk of multidrug-resistant mycobacterium tuberculosis epidemics in regions of Taiwan	Int J Infect Dis	16	10	e739-e747
2012	Liao CM, Cheng YH, Lin YJ, Hsieh NH, Huang TL, Chio CP, Chen SC and Ling MP	A probabilistic transmission and population dynamic model to assess tuberculosis infection risk	Risk Anal	32	8	1420-1432
2012	Lin HH, Dowdy D, Dye C, Murray M and Cohen T	Impact of new tuberculosis diagnostics on transmission: Why context matters	B World Health Organ	90	10	739-747
2012	Liu L, Wu J and Zhao XQ	The impact of migrant workers on the tuberculosis transmission: General models and a case study for china	Math Biosci Eng	9	4	785-807
2012	Menzies NA, Cohen T, Lin HH, Murray M and Salomon JA	Population health impact and cost-effectiveness of tuberculosis diagnosis with expert MTB/RIF: A dynamic simulation and economic evaluation	PLoS Med	9	11	e1001347
2012	Moualeu DP, Bowong S, Tewa JJ and Emvudu Y	Analysis of the impact of diabetes on the dynamical transmission of tuberculosis	Math Model Nat Phenom	7	3	117-146
2012	Mushayabasa S and Bhunu CP	Modeling the impact of voluntary testing and treatment on tuberculosis transmission dynamics	Int J Biomath	5	4	1250029
2012	Sergeev R, Colijn C, Murray M and Cohen T	Modeling the dynamic relationship between HIV and the risk of drug-resistant tuberculosis	Sci Transl Med	4	135	135ra67
2012	Tewa JJ, Bowong S and Mewoli B	Mathematical analysis of two-patch model for the dynamical transmission of tuberculosis	Appl Math Model	36	6	2466-2485
2012	Tewa JJ, Bowong S and Oukouomi Noutchie SC	Mathematical analysis of a two-patch model of tuberculosis disease with staged progression	Appl Math Model	36	12	5792-5807
2012	Wang J, Gao S-S and Li X-Z	A TB model with infectivity in latent period and imperfect treatment	Discrete Dyn Nat Soc	2012	---	1-19

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2012	Winetsky DE, Negoescu DM, DeMarchis EH, Almukhamedova O, Dooronbekova A, Pulatov D, Vezhnina N, Owens DK and Goldhaber-Fiebert JD	Screening and rapid molecular diagnosis of tuberculosis in prisons in Russia and eastern Europe: A cost-effectiveness analysis	PLoS Med	9	11	e1001348
2013	Andrews JR, Morrow C and Wood R	Modeling the role of public transportation in sustaining tuberculosis transmission in South Africa	Am J Epidemiol	177	6	556-561
2013	Bowong S and Aziz Alaoui AM	Optimal intervention strategies for tuberculosis	Commun Nonlinear Sci	18	6	1441-1453
2013	Bowong S, Tewa JJ and Kurths J	Dynamics of the spread of tuberculosis in heterogeneous complex metapopulations	Int J Bifurcat Chaos	23	7	1350128
2013	Dowdy DW, Basu S and Andrews JR	Is passive diagnosis enough? The impact of subclinical disease on diagnostic strategies for tuberculosis	Am J Respir Crit Care Med	187	5	543-551
2013	Dowdy DW, Davis JL, den Boon S, Walter ND, Katamba A and Cattamanchi A	Population-level impact of same-day microscopy and expert MTB/RIF for tuberculosis diagnosis in Africa	PLoS One	8	8	e70485
2013	Dowdy DW, Lotia I, Azman AS, Creswell J, Sahu S and Khan AJ	Population-level impact of active tuberculosis case finding in an Asian megacity	PLoS One	8	10	e77517
2013	Emvudu Y, Demasse RD and Djeudeu D	Optimal control using state-dependent Riccati equation of lost of sight in a tuberculosis model	Comput Appl Math	32	2	191-210
2013	Herrera M, Bosch P, Najera M and Aguilera X	Modeling the spread of tuberculosis in semiclosed communities	Comput Math Methods Med	2013	---	648291
2013	Hohmann N and Voss-Bohme A	The epidemiological consequences of leprosy-tuberculosis co-infection	Math Biosci	241	2	225-237
2013	Kasaie P, Dowdy D and Kelton WD	An agent-based simulation of a tuberculosis epidemic: Understanding the timing of transmission	Proceedings - 2013 Winter Simulation Conference	---	---	2227-2238
2013	Klotz A, Harouna A and Smith AF	Forecast analysis of the incidence of tuberculosis in the province of Quebec	BMC Public Health	13	1	400
2013	Liao C-M, Lin Y-J and Cheng Y-H	Modeling the impact of control measures on tuberculosis infection in senior care facilities	Build Environ	59	---	66-75
2013	Mehra M, Cossrow N, Kambili C, Underwood R, Makkar R and Potluri R	Assessment of tuberculosis burden in china using a dynamic disease simulation model	Int J Tuberc Lung Dis	17	9	1186-1194
2013	Mills HL, Cohen T and Colijn C	Community-wide isoniazid preventive therapy drives drug-resistant tuberculosis: A model-based analysis	Sci Transl Med	5	180	180ra49
2013	Mushayabasa S and Bhunu CP	Modeling the impact of early therapy for latent tuberculosis patients and its optimal control analysis	J Biol Phys	39	4	723-747
2013	Nainggolan J, Supian S, Supriatna AK and Anggriani N	Mathematical model of tuberculosis transmission with recurrent infection and vaccination	J Phys Conf Ser	423	1	12059

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2013	Nyabadza F and Winkler D	A simulation age-specific tuberculosis model for the cape town metropole	S Afr J Sci	109	9-10	1-7
2013	Okuonghae D	A mathematical model of tuberculosis transmission with heterogeneity in disease susceptibility and progression under a treatment regime for infectious cases	Appl Math Model	37	10	6786-6808
2013	Silva CJ and Torres DF	Optimal control for a tuberculosis model with reinfection and post-exposure interventions	Math Biosci	244	2	154-164
2013	Sun AY, Pai M, Salje H, Satyanarayana S, Deo S and Dowdy DW	Modeling the impact of alternative strategies for rapid molecular diagnosis of tuberculosis in southeast Asia	Am J Epidemiol	178	12	1740-1749
2013	Tian Y, Osgood ND, Al-Azem A and Hoeppner VH	Evaluating the effectiveness of contact tracing on tuberculosis outcomes in Saskatchewan using individual-based modeling	Health Educ Behav	40	1 Suppl	98S-110S
2013	Wang X, Yang J and Zhang F	Dynamic of a TB-HIV coinfection epidemic model with latent age	J Appl Math	2013	---	1-13
2013	Yaesoubi R and Cohen T	Identifying dynamic tuberculosis case-finding policies for HIV/TB coepidemics	P Natl Acad Sci USA	110	23	9457-9462
2013	Zhou X, Shi X and Cheng H	Modelling and stability analysis for a tuberculosis model with healthy education and treatment	Comput Appl Math	32	2	245-260
2014	Agusto FB and Adekunle AI	Optimal control of a two-strain tuberculosis-HIV/AIDS co-infection model	Biosystems	119	--	20-44
2014	Azman AS, Golub JE and Dowdy D	How much is tuberculosis screening worth? Estimating the value of active case finding for tuberculosis in South Africa, China, and India	BMC Med	12	1	216
2014	Choi S and Jung E	Optimal tuberculosis prevention and control strategy from a mathematical model based on real data	Bull Math Biol	76	7	1566-1589
2014	Denkinger C, Kampmann B, Ahmed S and Dowdy D	Modeling the impact of novel diagnostic tests on pediatric and extrapulmonary tuberculosis	BMC Infect Dis	14	1	477
2014	Denkinger CM, Pai M and Dowdy DW	Do we need to detect isoniazid resistance in addition to rifampicin resistance in diagnostic tests for tuberculosis?	PLoS One	9	1	e84197
2014	Dowdy DW, Andrews JR, Dodd PJ and Gilman RH	A user-friendly, open-source tool to project impact and cost of diagnostic tests for tuberculosis	Elife	3	---	e02565
2014	Fofana MO, Knight GM, Gomez GB, White RG and Dowdy DW	Population-level impact of shorter-course regimens for tuberculosis: A model-based analysis	PLoS One	9	5	e96389
2014	Hill PC, Dye C, Viney K, Tabutoa K, Kienene T, Bissell K, Williams BG, Zachariah R, Marais BJ and Harries AD	Mass treatment to eliminate tuberculosis from an island population	Int J Tuberc Lung Dis	18	8	899-904
2014	Jafaruddin, Sutimin and Ariyanto	A model dynamic for effect latent population to co-epidemic of HIV-TB	AIP Conference Proceedings	1587	1	61-65

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2014	Kasaie P, Andrews JR, Kelton WD and Dowdy DW	Timing of tuberculosis transmission and the impact of household contact tracing. An agent-based simulation model	Am J Respir Crit Care Med	189	7	845-852
2014	Kim S, Choe S, Kim J, Nam S, Shin Y and Lee S	What does a mathematical model tell about the impact of reinfection in Korean tuberculosis infection?	Osong Public Health Res Perspect	5	1	40-45
2014	Knight GM, Griffiths UK, Sumner T, Laurence YV, Gheorghe A, Vassall A, Glaziou P and White RG	Impact and cost-effectiveness of new tuberculosis vaccines in low- and middle-income countries	Proc Natl Acad Sci U S A	111	43	15520-15525
2014	Langley I, Lin HH, Egwaga S, Doulla B, Ku C-C, Murray M, Cohen T and Squire SB	Assessment of the patient, health system, and population effects of expert MTB/RIF and alternative diagnostics for tuberculosis in Tanzania: An integrated modelling approach	Lancet Glob Health	2	10	e581-e591
2014	Laohombé A, Ngningone Eya I, Tewa JJ, Bah A, Bowong S and Oukouomi Noutchie SC	Mathematical analysis of a general two-patch model of tuberculosis disease with lost sight individuals	Abstr Appl Anal	2014	---	1-14
2014	Lin YJ and Liao CM	Seasonal dynamics of tuberculosis epidemics and implications for multidrug-resistant infection risk assessment	Epidemiol Infect	142	2	358-370
2014	Liu L and Wang Y	A mathematical study of a TB model with treatment interruptions and two latent periods	Comput Math Methods Med	2014	---	932186
2014	Lopes JS, Rodrigues P, Pinho ST, Andrade RF, Duarte R and Gomes MG	Interpreting measures of tuberculosis transmission: A case study on the Portuguese population	BMC Infect Dis	14	1	340
2014	Moualeu DP, Bowong S and Kurths J	Parameter estimation of a tuberculosis model in a patchy environment: Case of Cameroon	BIOMAT	9	---	352
2014	Nainggolan J, Supian S, Supriatna AK and Anggriani N	Mathematical model of TB transmission in a two-strain with vaccination	AIP Conference Proceedings	1587	1	70-73
2014	Nainggolan J, Supian S, Supriatna AK, Anggriani N and Detiatrimargini	Optimal control solution of a TB transmission model with recurrent infection and vaccination using c# programming	Advance Scientific Letters	20	1	51-55
2014	Raimundo SM, Yang HM and Venturino E	Theoretical assessment of the relative incidences of sensitive and resistant tuberculosis epidemic in presence of drug treatment	Math Biosci Eng	11	4	971-993
2014	Rodrigues P, Silva CJ and Torres DF	Cost-effectiveness analysis of optimal control measures for tuberculosis	Bull Math Biol	76	10	2627-2645
2014	Salje H, Andrews JR, Deo S, Satyanarayana S, Sun AY, Pai M and Dowdy D	The importance of implementation strategy in scaling up expert MTB/RIF for diagnosis of tuberculosis in the Indian health care system: A transmission model	PLoS Med	11	7	e1001674
2014	Shrestha S, Knight GM, Fofana M, Cohen T, White RG, Cobelens F and Dowdy DW	Drivers and trajectories of resistance to new first-line drug regimens for tuberculosis	Open Forum Infect Dis	1	2	ofu073
2014	Silva CJ and Torres DFM	Modeling TB-HIV syndemic and treatment	J Appl Math	2014	---	1-14
2014	Suen SC, Bendavid E and Goldhaber-Fiebert JD	Disease control implications of India's changing multi-drug resistant tuberculosis epidemic	PLoS One	9	3	e89822

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2014	Trauer JM, Denholm JT and McBryde ES	Construction of a mathematical model for tuberculosis transmission in highly endemic regions of the Asia-pacific	J Theor Biol	358	---	74-84
2014	Zheng N, Whalen CC and Handel A	Modeling the potential impact of host population survival on the evolution of m. Tuberculosis latency	PLoS One	9	6	e105721
2015	Ackley SF, Liu F, Porco TC and Pepperell CS	Modeling historical tuberculosis epidemics among Canadian first nations: Effects of malnutrition and genetic variation	PeerJ	3	---	e1237
2015	Arinaminpathy N and Dowdy D	Understanding the incremental value of novel diagnostic tests for tuberculosis	Nature	528	7580	S60-S67
2015	Cao H and Tan H	The discrete tuberculosis transmission model with treatment of latently infected individuals	Adv Differ Equ-NY	2015	1	165
2015	Carvalho A and Pinto CMA	Dynamics of coinfection of HIV/AIDS and tuberculosis with exogenous reinfection	AIP Conference Proceedings	1648	1	350005
2015	Chindelevitch L, Menzies NA, Pretorius C, Stover J, Salomon JA and Cohen T	Evaluating the potential impact of enhancing HIV treatment and tuberculosis control programmes on the burden of tuberculosis	J R Soc Interface	12	106	20150146
2015	Choi S, Jung E and Lee SM	Optimal intervention strategy for prevention tuberculosis using a smoking-tuberculosis model	J Theor Biol	380	---	256-270
2015	Denysiuk R, Silva C and Torres DF	Multiobjective approach to optimal control for a tuberculosis model	Optimization Methods and Software	30	5	893-910
2015	Gilbert JA, Long EF, Brooks RP, Friedland GH, Moll AP, Townsend JP, Galvani AP and Shenoi SV	Integrating community-based interventions to reverse the convergent TB/HIV epidemics in rural South Africa	PLoS One	10	5	e0126267
2015	Guzzetta G, Ajelli M, Yang Z, Mukasa LN, Patil N, Bates JH, Kirschner DE and Merler S	Effectiveness of contact investigations for tuberculosis control in Arkansas	J Theor Biol	380	---	238-246
2015	Huynh GH, Klein DJ, Chin DP, Wagner BG, Eckhoff PA, Liu R and Wang L	Tuberculosis control strategies to reach the 2035 global targets in china: The role of changing demographics and reactivation disease	BMC Med	13	1	88
2015	Kasaie P, Mathema B, Kelton WD, Azman AS, Pennington J and Dowdy DW	A novel tool improves existing estimates of recent tuberculosis transmission in settings of sparse data collection	PLoS One	10	12	e0144137
2015	Kendall EA, Fofana MO and Dowdy DW	Burden of transmitted multidrug resistance in epidemics of tuberculosis: A transmission modelling analysis	Lancet Resp Med	3	12	963-972
2015	Knight GM, Colijn C, Shrestha S, Fofana M, Cobelens F, White RG, Dowdy DW and Cohen T	The distribution of fitness costs of resistance-conferring mutations is a key determinant for the future burden of drug-resistant tuberculosis: A model-based analysis	Clin Infect Dis	61	Suppl 3	S147-S154
2015	Knight GM, Dodd PJ, Grant AD, Fielding KL, Churchyard GJ and White RG	Tuberculosis prevention in South Africa	PLoS One	10	4	e0122514

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2015	Knight GM, Gomez GB, Dodd PJ, Dowdy D, Zwerling A, Wells WA, Cobelens F, Vassall A and White RG	The impact and cost-effectiveness of a four-month regimen for first-line treatment of active tuberculosis in South Africa	PLoS One	10	12	e0145796
2015	Lin HH, Wang L, Zhang H, Ruan Y, Chin DP and Dye C	Tuberculosis control in china: Use of modelling to develop targets and policies	B World Health Organ	93	11	790-798
2015	Mandal S and Arinaminpathy N	Transmission modeling and health systems: The case of TB in India	Int Health	7	2	114-120
2015	Mondal PK and Kar TK	Optimal treatment control and bifurcation analysis of a tuberculosis model with effect of multiple re-infections	Int J Dynamics and Control	5	2	367-380
2015	Moualeu DP, Weiser M, Ehrig R and Deufhard P	Optimal control for a TB model with undetected cases in Cameroon.	Nonlinear Sci	20	3	986-1003
2015	Moualeu DP, Roblitz S, Ehrig R and Deuflhard P	Parameter identification in a tuberculosis model for Cameroon	PLoS One	10	4	e012067
2015	Narula P, Azad S and Lio P	Bayesian melding approach to estimate the reproduction number for tuberculosis transmission in Indian states and union territories	Asia Pac J Public Health	27	7	723-732
2015	Nguyen HT, Hickson RI, Kompas T, Mercer GN and Lokuge KM	Strengthening tuberculosis control overseas: Who benefits?	Value Health	18	2	180-188
2015	Okuonghae D and Ikhimwin BO	Dynamics of a mathematical model for tuberculosis with variability in susceptibility and disease progressions due to difference in awareness level	Front Microbiol	6	---	1530
2015	Oxlade O, Huang CC and Murray M	Estimating the impact of reducing under-nutrition on the tuberculosis epidemic in the central eastern states of India: A dynamic modeling study	PLoS One	10	6	e0128187
2015	Pan S-C, Ku C-C, Kao D, Ezzati M, Fang C-T and Lin H-H	Effect of diabetes on tuberculosis control in 13 countries with high tuberculosis: A modelling study	Lancet Diabetes Endo	3	5	323-330
2015	Pinho ST, Rodrigues P, Andrade RF, Serra H, Lopes JS and Gomes MG	Impact of tuberculosis treatment length and adherence under different transmission intensities	Theor Popul Biol	104	---	68-77
2015	Rodrigues CG, Espíndola AL, Penna TJ	An agent-based computational model for tuberculosis spreading on age-structured populations	Physica A	428	---	52-59
2015	Reid A, Grant AD, White RG, Dye C, Vynnycky E, Fielding K, Churchyard G and Pillay Y	Accelerating progress towards tuberculosis elimination: The need for combination treatment and prevention	Int J Tuberc Lung Dis	19	1	5-9
2015	Sachdeva KS, Raizada N, Gupta RS, Nair SA, Denkinger C, Paramasivan CN, Kulsange S, Thakur R, Dewan P, Boehme C and Arinaminpathy N	The potential impact of up-front drug sensitivity testing on India's epidemic of multi-drug resistant tuberculosis	PLoS One	10	7	e0131438
2015	Silva CJ and Torres DF	A TB-HIV-AIDS coinfection model and optimal control treatment	Discrete Contin Dyn S	35	9	4639 - 4663

Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2015	Vynnycky E, Sumner T, Fielding KL, Lewis JJ, Cox AP, Hayes RJ, Corbett EL, Churchyard GJ, Grant AD and White RG	Tuberculosis control in South African gold mines: Mathematical modeling of a trial of community-wide isoniazid preventive therapy	Am J Epidemiol	181	8	619-632
2015	Zhang J and Feng G	Global stability for a tuberculosis model with isolation and incomplete treatment	Comput Appl Math	34	3	1237-1249
2015	Zhang J, Li Y and Zhang X	Mathematical modeling of tuberculosis data of china	J Theor Biol	365	---	159-163
2016	Blaser N, Zahnd C, Hermans S, Salazar-Vizcaya L, Estill J, Morrow C, Egger M, Keiser O and Wood R	Tuberculosis in cape town: An age-structured transmission model	Epidemics	14	---	54-61
2016	Gerberry DJ	Practical aspects of backward bifurcation in a mathematical model for tuberculosis	J Theor Biol	388	---	15-36
2016	Gilbert JA, Shenoi SV, Moll AP, Friedland GH, Paltiel AD and Galvani AP	Cost-effectiveness of community-based TB/HIV screening and linkage to care in rural South Africa	PLoS One	11	12	e0165614
2016	Gomes MG, Barreto ML, Glaziou P, Medley GF, Rodrigues LC, Wallinga J and Squire SB	End TB strategy: The need to reduce risk inequalities	BMC Infect Dis	16	1	132
2016	Houben RM, Lalli M, Sumner T, Hamilton M, Pedrazzoli D, Bonsu F, Hippner P, Pillay Y, Kimerling M, Ahmedov S, Pretorius C and White RG	Time impact - a new user-friendly tuberculosis (TB) model to inform TB policy decisions	BMC Med	14	1	56
2016	Huo H-F and Zou M-X	Modelling effects of treatment at home on tuberculosis transmission dynamics	Appl Math Model	40	21-22	9474-9484
2016	Jabbari A, Castillo-Chavez C, Nazari F, Song B and Kheiri H	A two-strain TB model with multiple latent stages	Math Biosci Eng	13	4	741-785
2016	Kunkel A, Crawford FW, Shepherd J and Cohen T	Benefits of continuous isoniazid preventive therapy may outweigh resistance risks in a declining tuberculosis/HIV coepidemic	AIDS	30	17	2715-2723
2016	Lapaan RD, Collera JA and Addawe JM	Mathematical analysis of tuberculosis transmission model with delay	AIP Conference Proceedings	1787	1	80022
2016	Liu L and Wang Y	Analysis of a TB model with treatment interruptions	J Nonlinear Sci App	9	4	1549-1563
2016	Liu S, Li A, Feng X, Zhang X and Wang K	A dynamic model of human and livestock tuberculosis spread and control in Urumqi, Xinjian, china	Comput Math Methods Med	---	---	3410320
2016	Mears J, Vynnycky E, Lord J, Borgdorff MW, Cohen T, Crisp D, Innes JA, Lilley M, Maguire H, McHugh TD, Woltmann G, Abubakar I and Sonnenberg P	The prospective evaluation of the TB strain typing service in England: A mixed methods study	Thorax	71	8	734-741
2016	Moualeu DP, Nana Yakam A, Bowong S and Temgoua A	Analysis of a tuberculosis model with undetected and lost-sight cases	Commun Nonlinear Sci	41	---	48-63

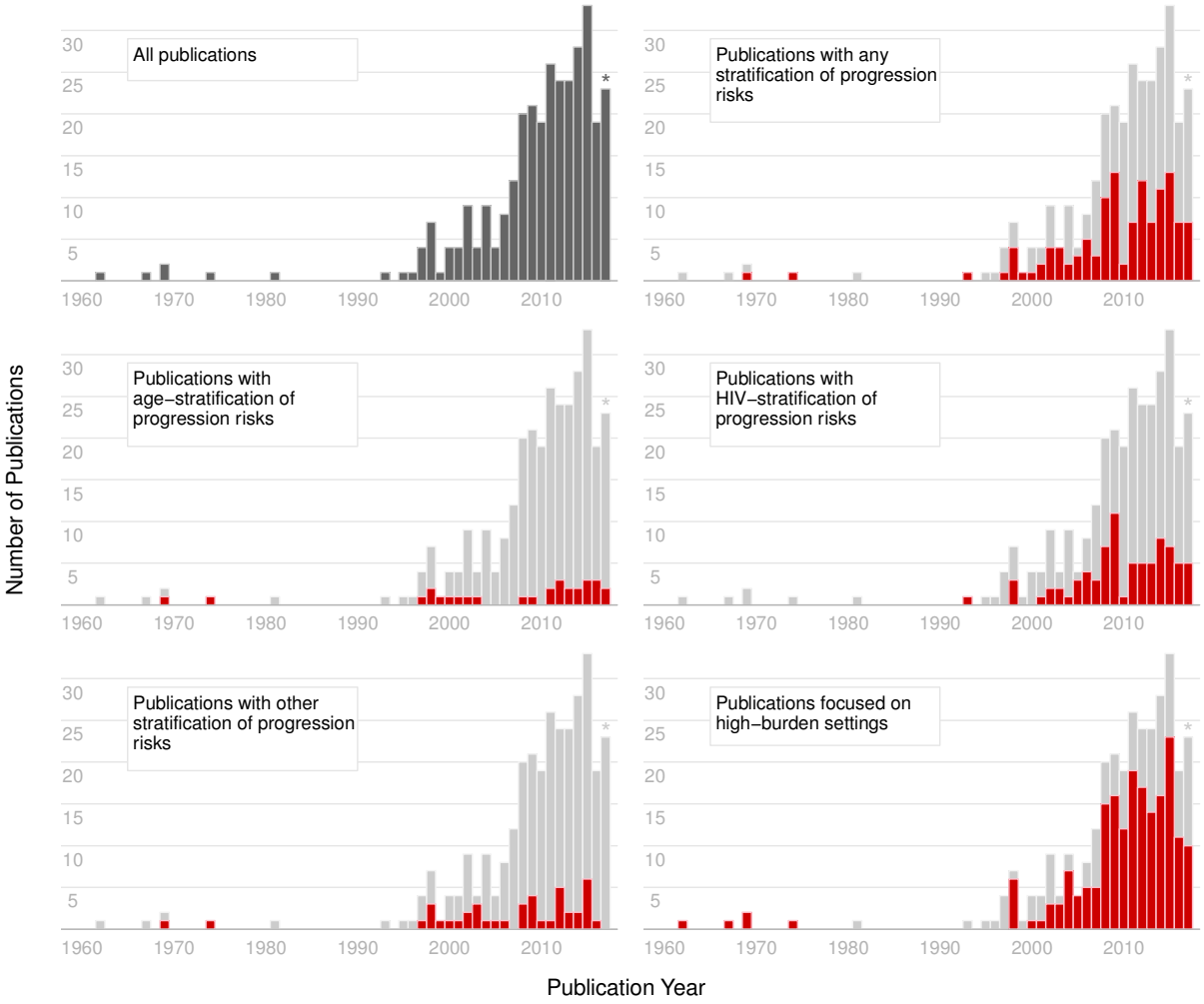
Table S2: Publications included in full text review, continued.

Year	Authors	Title	Journal	Volume	Issue	Pages
2016	Shrestha S, Chatterjee S, Rao KD and Dowdy DW	Potential impact of spatially targeted adult tuberculosis vaccine in Gujarat, India	J R Soc Interface	13	116	20151016
2016	Sumner T, Houben RM, Rangaka MX, Maartens G, Boulle A, Wilkinson RJ and White RG	Post-treatment effect of isoniazid preventive therapy on tuberculosis incidence in HIV-infected individuals on antiretroviral therapy	AIDS	30	8	1279-1286
2016	Trauer JM, Achar J, Parpieva N, Khamraev A, Denholm JT, Falzon D, Jaramillo E, Mesic A, du Cros P and McBryde ES	Modelling the effect of short-course multidrug-resistant tuberculosis treatment in Karakalpakstan, Uzbekistan	BMC Med	14	1	187
2016	Trauer JM, Denholm JT, Waseem S, Ragonnet R and McBryde ES	Scenario analysis for programmatic tuberculosis control in western province, Papua new guinea	Am J Epidemiol	183	12	1138-1148
2016	Yang Y, Guo C, Liu L, Zhang T and Liu W	Seasonality impact on the transmission dynamics of tuberculosis	Comput Math Methods Med	---	---	8713924
2016	Yang Y, Tang S, Xiaohong RE, Zhao H and Guo C	Global stability and optimal control for a tuberculosis model with vaccination and treatment	Discret Contin Dyn S	21	3	1009-1022
2017	Ainseba B, Feng Z, Iannelli M and Milner FA	Control strategies for TB epidemics	Siam J Appl Math	77	1	82-107
2017	Fofana MO, Shrestha S, Knight GM, Cohen T, White RG, Cobelens F and Dowdy DW	A multistrain mathematical model to investigate the role of Pyrazinamide in the emergence of extensively drug-resistant tuberculosis	Antimicrob Agents CH	61	3	e00498-16
2017	Kendall EA, Azman AS, Cobelens FG and Dowdy DW	MDR-TB treatment as prevention: the projected population-level impact of expanded treatment for multidrug-resistant tuberculosis	PLoS One	12	3	16
2017	Kendall EA, Fojo AT and Dowdy DW	Expected effects of adopting a 9 month regimen for multidrug-resistant tuberculosis: a population modelling analysis	Lancet Resp Med	5	3	191-199
2017	Kendall EA, Shrestha S, Cohen T, Nuermberger E, Dooley KE, Gonzalez-Angulo L, Churchyard GJ, Nahid P, Rich ML, Bansbach C, Forissier T, Lienhardt, C and Dowdy DW	Priority-setting for novel drug regimens to treat tuberculosis: an epidemiologic model	PLoS Med	14	1	19
2017	Liu S, Li Y, Bi Y and Huang Q	Mixed vaccination strategy for the control of tuberculosis: a case study in China	Math Biosci Eng	14	3	695-708
2017	Lusiana V, Putra S, Nuraini N and Soewono E	Mathematical modeling of transmission co-infection tuberculosis in HIV community	AIP Conference Proceedings	1825	1	020012
2017	Matadi M	Symmetry and conservation laws for tuberculosis model	Int J Biomath	10	3	1750042
2017	McBryde ES, Meehan MT, Doan TN, Ragonnet R, Marais BJ, Guernier V and Trauer JM	The risk of global epidemic replacement with drug-resistant *Mycobacterium tuberculosis* strains	Int J Infect Dis	56	---	14-20

Table S2: Publications included in full text review, continued.

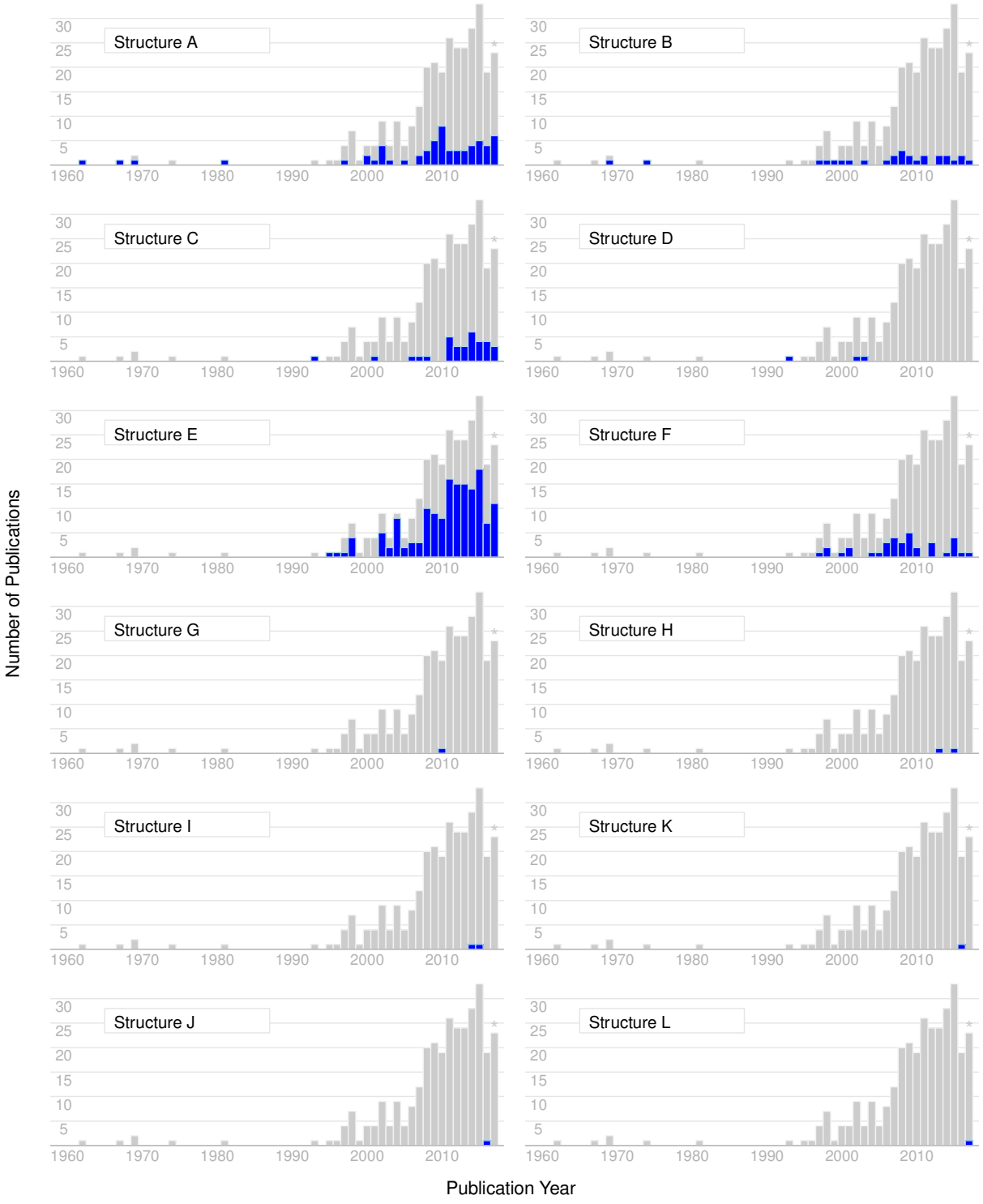
Year	Authors	Title	Journal	Volume	Issue	Pages
2017	Moreno V, Espinoza B, Barley K, Paredes M, Bichara D, Mubayi A and Castillo-Chavez C	The role of mobility and health disparities on the transmission dynamics of Tuberculosis	Theor Biol Med Model	14	3	17
2017	Obaid HA, Ouifki R and Patidar KC	A nonstandard finite difference method for solving a mathematical model of HIV-TB co-infection	J Differ Equ Appl	23	6	1105-1132
2017	Pandey S, Chadha VK, Laxminarayan R and Arinaminpathy N	Estimating tuberculosis incidence from primary survey data: a mathematical modeling approach	Int J Tuberc Lung Dis	21	4	366-374
2017	Ragonnet R, Trauer JM, McBryde ES, Houben RM, Denholm JT, Handel A and Sumner T	Is IPT more effective in high-burden settings? Modelling the effect of tuberculosis incidence on IPT impact	Int J Tuberc Lung Dis	21	1	60-66
2017	Rahmah Z, Subartini B, Djauhari E, Anggriani N, Supriatna AK	An application of forward-backward difference approximation method on the optimal control problem in the transmission of tuberculosis model	AIP Conference Proceedings	1825	1	020020
2017	Rayhan SN, Bakhtiar T, and Jaharuddin	Two-strain tuberculosis transmission model under three control strategies	IOP Conference Series	58	1	012025
2017	Ren SJ	Global stability in a tuberculosis model of imperfect treatment with age-dependent latency	Math Biosci Eng	14	5/6	1337-1360
2017	Sharma A, Hill A, Kurbatova E, van der Walt M, Kvasnovsky C, Tupasi TE, Caoili JC, Gler MT, Volchenkov GV, Kazennyy BY, Demikhova OV, Bayona J, Contreras C, Yagui M, Leimane V, Cho SN, Kim HJ, Kliiman K, Akksilp S, Jou R, Ershova J, Dalton T and Cegielski P	Estimating the future burden of multidrug-resistant and extensively drug-resistant tuberculosis in India, the Philippines, Russia, and South Africa: a mathematical modelling study	Lancet Infect Dis	17	7	707-715
2017	Sharomi OY, Safi MA, Gumel AB and Gerberry DJ	Exogenous re-infection does not always cause backward bifurcation in TB transmission dynamics	Appl Math Comput	298	---	322-335
2017	Shrestha S, Hill AN, Marks SM and Dowdy DW	Comparing drivers and dynamics of tuberculosis (TB) in California, Florida, New York and Texas	Am J Respir Crit Care Med		---	---
2017	Side S, Mulbar U, Sidjara S and Sanusi W	A SEIR model for transmission of tuberculosis	AIP Conference Proceedings	1830	1	020004
2017	Silva CJ, Maurer H and Torres DF	Optimal control of a tuberculosis model with state and control delays	Math Biosci Eng	14	1	321-337
2017	Tuite AR, Gallant V, Randell E, Bourgeois AC and Greer AL	Stochastic agent-based modeling of tuberculosis in Canadian Indigenous communities	BMC Public Health	17	73	12
2017	Yang YL, Wu JH, Li JQ and Xu XX	Tuberculosis with relapse: a model	Math Popul Stud	24	1	3-20

Figure S1: Histogram of included studies by publication year and subgroup.



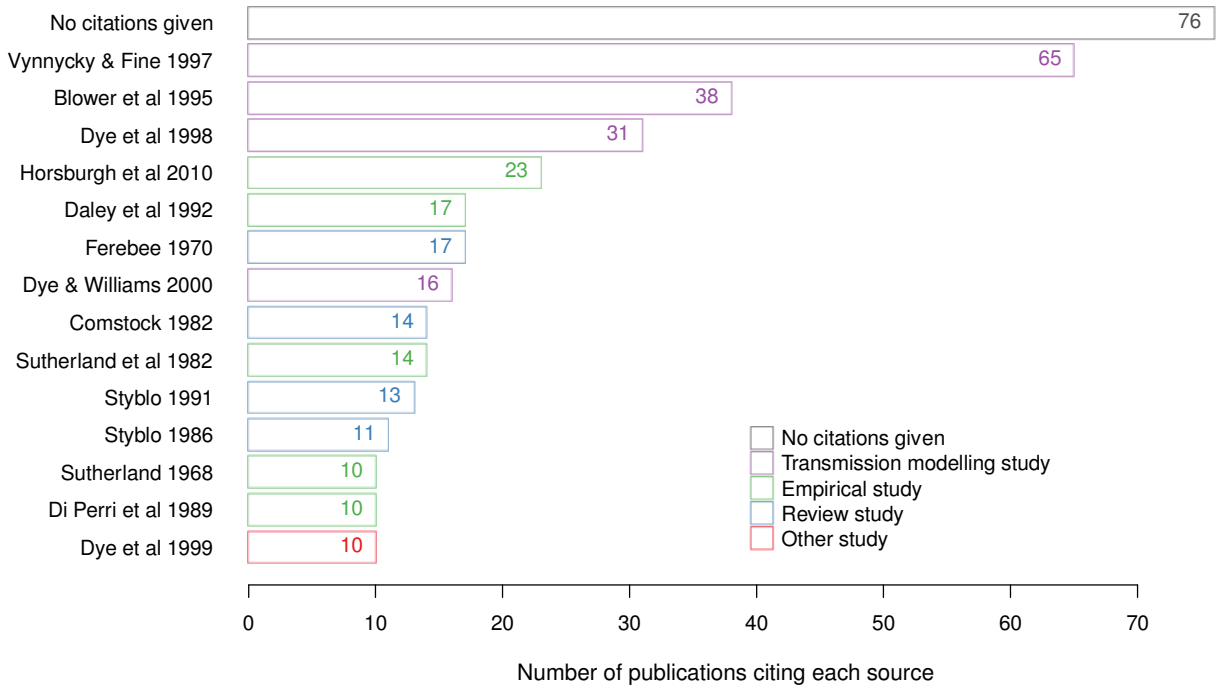
* For 2017, column only represents the first 8 months of the year (January – August).

Figure S2: Histogram of included studies by publication year and model structure.



* For 2017, column only represents the first 8 months of the year (January – August).

Figure S3: Most cited sources for parameters describing progression from infection to active TB disease*.



*Full citations for these papers included in the main citation list.

Figure S4: Model predictions for annual and cumulative incidence of active TB by years since *M. tb* infection, for groups with no individual risk factors: median for each model type.

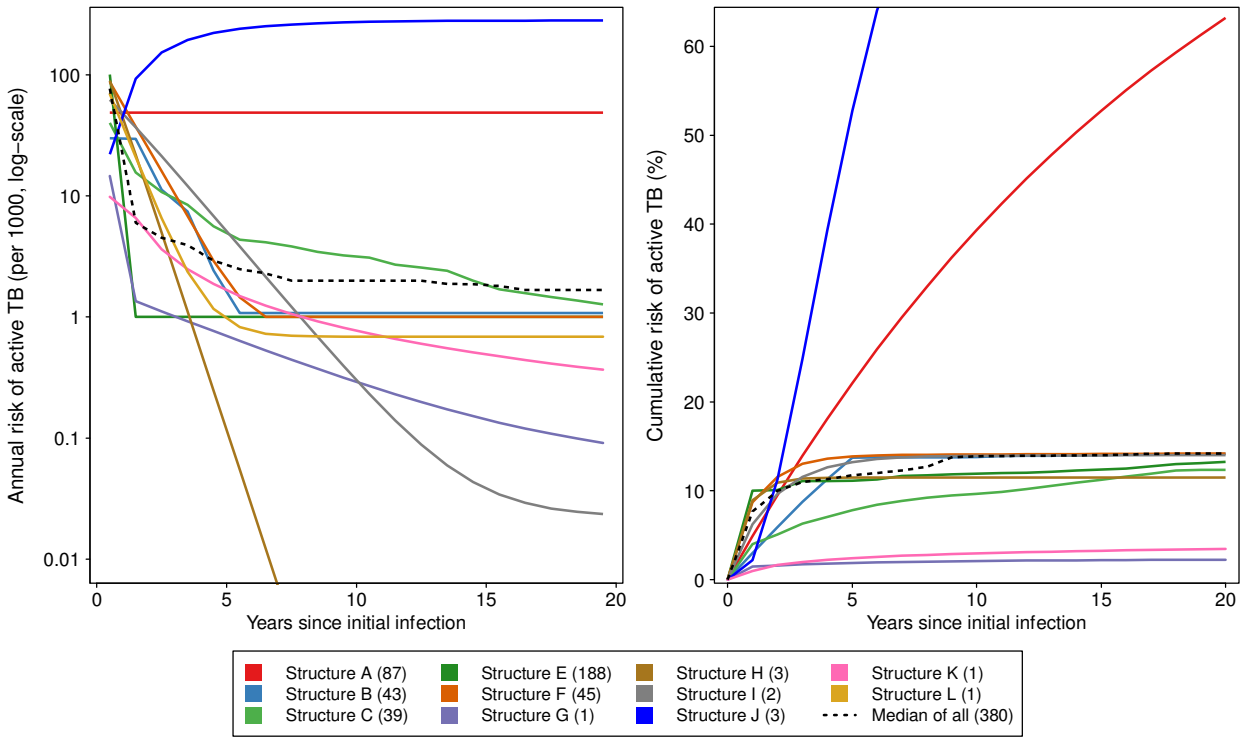
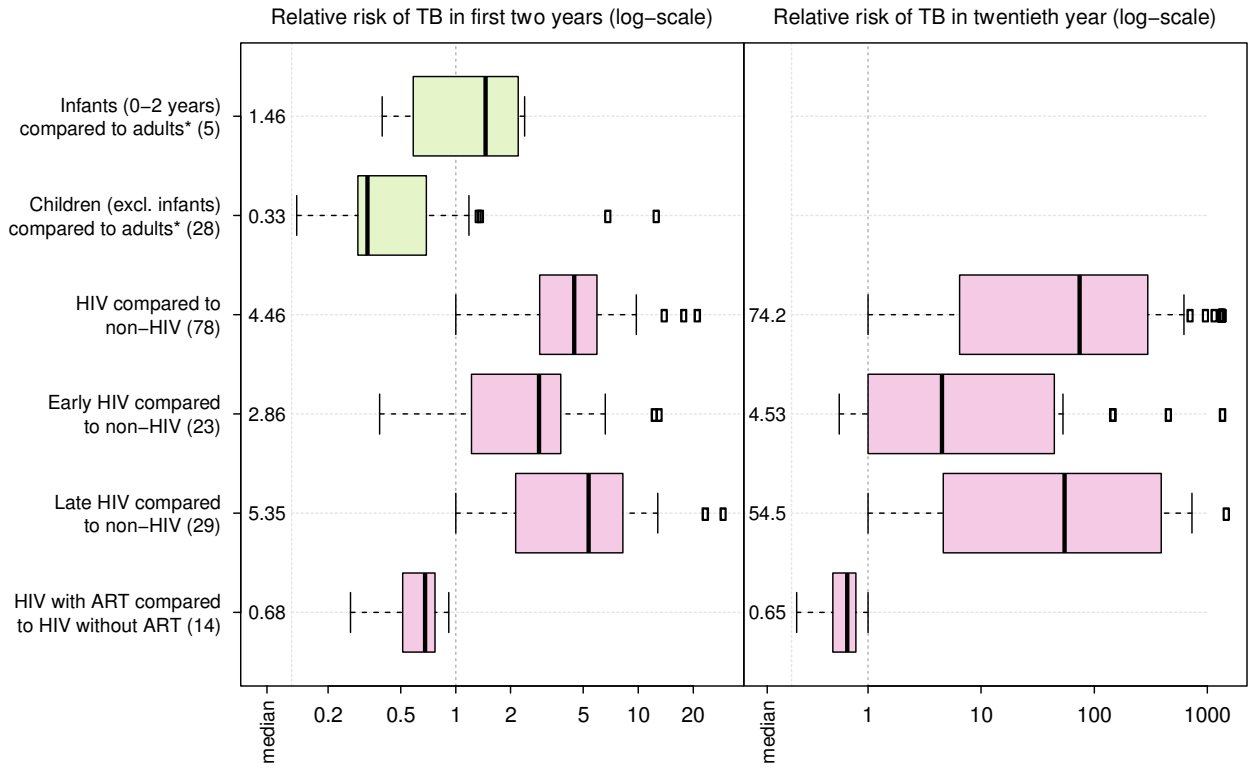


Figure S5: Model predictions for relative risk of active TB during first and twentieth year since *M. tb* infection, for named risk factors*.



* Values in parentheses indicate the number of studies for which the comparison is available.

Figure S6: Cumulative TB incidence projections for each model structure with parameters fitted to empirical data (Sutherland 1968).

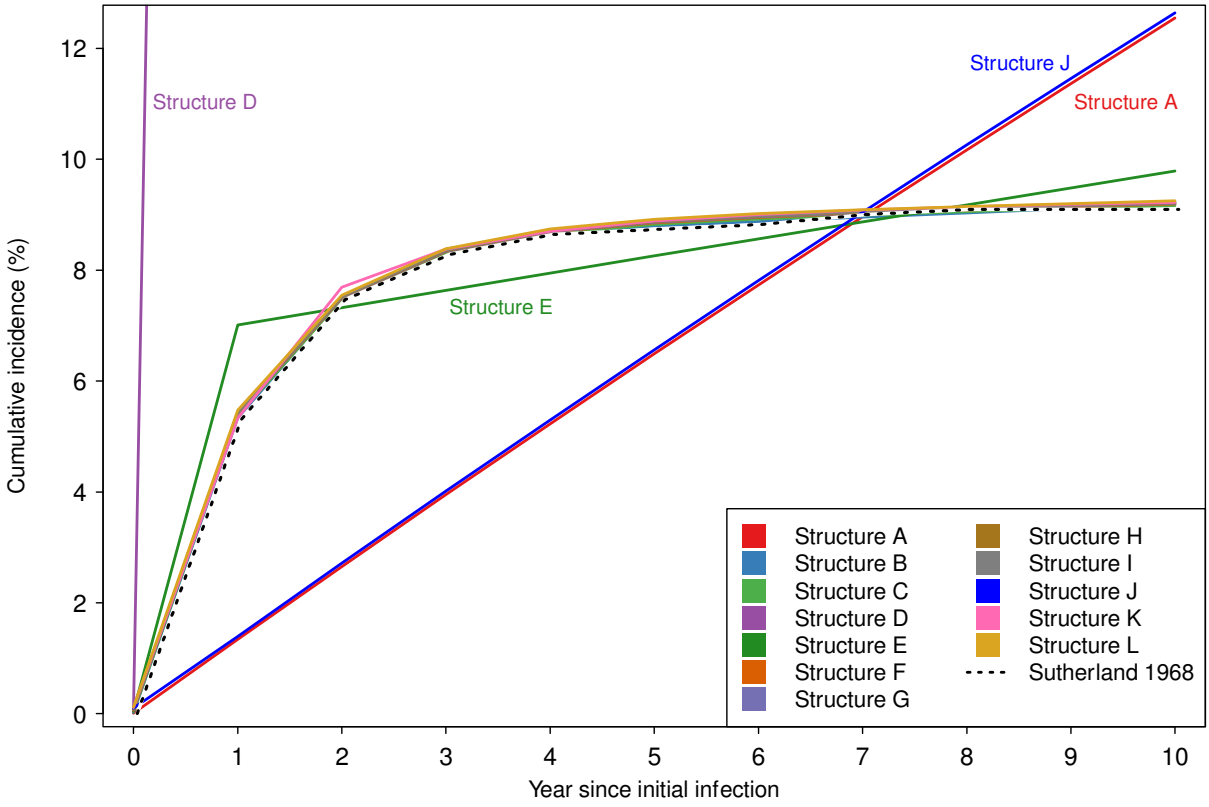


Table S3: Parameter values and fit statistics for model structures fitted to empirical data (Sutherland 1968).

Model Structure	Fitted Parameter Values	Root Mean Squared Error (percentage points)	Qualitative Fit*
A	$c = 0.0134$	3.07	Poor
B	$c = 0.000848$ $d_1 = 0.0546$ $d_2 = 0.0231$ $d_3 = 0.00880$ $d_4 = 0.00393$ $d_5 = 0.00150$	0.0448	Good
C	$c = 0.000594$ $d = 0.0826$ $e = 0.872$	0.0447	Good
D	not applicable	91.7	Poor
E	$a = 0.0665$ $c = 0.00337$	0.689	Marginal
F	$b = 0.0860$ $c = 0.000594$ $d = 0.955$	0.0447	Good
G	$a = 0.000$ $c = 0.000594$ $d = 0.0826$ $e = 0.872$	0.0447	Good
H	$b = 0.0865$ $d = 0.955$ $f = 0.000594$	0.447	Good
I	$d = 0.0826$ $e = 0.866$ $f = 0.00686$	0.0447	Good
J	$c = 0.0134$ $d_1 = d_2 = d_3 = 100$**	3.09	Poor
K	$x_1 = 0.0536$ $x_2 = -2.195$ $c_t = x_1 max(1.0, t)^{x_2}$	0.0586	Good
L	$x_1 = 0.0836$ $x_2 = 0.00669$ $x_3 = 0.926$ $c_t = x_1(x_2 + e^{-x_3 t})$	0.0468	Good

* RMSE values > 1.0 categorized as poor fit. RMSE values between 1.0 and 0.1 categorized as marginal fit. RMSE values <0.1 categorized as good fit.

** These parameters were set to an upper limit of 100.