Online supplement: Glass, Myer, Lesosky (2019) The role of HIV viral load in mathematical models of HIV transmission and treatment: a review

Supplement Table 2: Summary characteristics of all models

			Interventions modelled																	Sub-population												Model type					
Author	**Year**	**Title**	ART	behavioural details	Condom use	circumcision	IDU interventions	Microbicides	PMTCT	PrEP	Vaccines	Drug resistance	HIV Testing	Review of models	Co-infections	Disease	sero-discordant couples	Viral load testing/monitoring	Other	MSM	FSW	IDU/ PWID	P/PW	Infants	General population	Heterosexual interaction only	Homosexual interaction only	Males	Females	Other	N/A	Deterministic	Stochastic	N/A	Individual	Population	N/A
Chesson, Gift	2000	The increasing marginal benefit of condom usage.			1																			1							1				1		
Valleron	2000	The roles for modeling in epidemiology.											1																	1			1			1
Levin, Bull, Stewart	2001	Epidemiology, evolution, and future of the HIV/AIDS pandemic.																1						1							1				1		
Salomon, Murray	2001	Modelling HIV/AIDS epidemics in sub-Saharan Africa using seroprevalence data from antenatal clinics.																				1									1				1		
Blower, Volberding	2002	What can modeling tell us about the threat of antiviral drug resistance?	1								1																			1			1			1
Boily, Bastos, Desai, et al.	2004	Changes in the transmission dynamics of the HIV epidemic after the wide-scale use of antiretroviral therapy could explain increases in sexually transmitted infections: results from mathematical models.												1	STI											1					1				1		
Gross, Porco, Grant	2004	HIV-1 superinfection and viral diversity.																1						1							1				1		
Kumaranayake, Vickerman, Walker, et al.	2004	The cost-effectiveness of HIV preventive measures among injecting drug users in Svetlogorsk, Belarus.																1			1										1				1		
Anderson, Hanson	2005	Potential public health impact of imperfect HIV type 1 vaccines.								1														1							1						1
Baggaley, Ferguson, Garnett	2005	The epidemiological impact of antiretroviral use predicted by mathematical models: a review.	1										1																1				1			1
Blower, Bodine, Kahn, et al.	2005	The antiretroviral rollout and drug-resistant HIV in Africa: insights from empirical data and theoretical models.	1								1																			1			1			1
Moore, Gu	2005	A mathematical model for treatment-resistant mutations of hiv.									1																			1	1				1	
Schwartz, Szczech, Ross, et al.	2005	Highly active antiretroviral therapy and the epidemic of HIV+ end-stage renal disease.												1	ESRD									1							1				1	
Smith, Bodine, Wilson et al.	2005	Evaluating the potential impact of vaginal microbicides to reduce the risk of acquiring HIV in female sex workers.					1													1												1		1		
Bacaer,Abdurahman, Ye	2006	Modeling the HIV/AIDS epidemic among injecting drug users and sex workers in Kunming, China.			1															1	1										1				1	
Baggaley, Garnett, Ferguson	2006	Modelling the impact of antiretroviral use in resource-poor settings.	1								1																			1	1				1	
Breban, McGowan, Topaz, et al.	2006	Modeling the potential impact of rectal microbicides to reduce hiv transmission in bathhouses.					1												1												1				1	
Cohen, Lipsitch, Walensky et al.	2006	Beneficial and perverse effects of isoniazid preventive therapy for latent tuberculosis infection in HIV-tuberculosis coinfected populations.												1	TB									1							1				1	
Dowdy, Chaisson, Moulton et al.	2006	The potential impact of enhanced diagnostic techniques for tuberculosis driven by HIV: a mathematical model.												1	TB															1	1				1	
Vickerman, Watts, Peeling, et al.	2006	Modelling the cost effectiveness of rapid point of care diagnostic tests for the control of HIV and other sexually transmitted infections among female sex workers.										1		1	STI					1											1				1	
Vickerman, Watts, Delany, et al.	2006	The importance of context: model projections on how microbicide impact could be affected by the underlying epidemiologic and behavioral situation in 2 African settings.					1																					1			1				1	
Vickerman, Terris-Prestholt, Delany, et al.	2006	Are targeted HIV prevention activities cost-effective in high prevalence settings? Results from a sexually transmitted infection treatment project for sex workers in Johannesburg, South Africa.																1		1											1				1	
Abbas, Anderson, Mellors	2007	Potential impact of antiretroviral chemoprophylaxis on HIV-1 transmission in resource-limited settings.		1					1		1													1							1					1

Andersson, Owens,Vardas, et al.	2007	Predicting the impact of a partially effective HIV vaccine and subsequent risk behavior change on the heterosexual HIV epidemic in low- and middle-income countries: A South African example.								1															1						1			1	
Boily, Lowndes, Vickerman, et al.	2007	Evaluating large-scale HIV prevention interventions: study design for an integrated mathematical modelling approach.															1						1						1				1		
Coffee, Lurie, Garnett	2007	Modelling the impact of migration on the HIV epidemic in South Africa.		1													1									1			1				1		
Fung, Guinness, Vickerman, et al.	2007	Modelling the impact and cost-effectiveness of the HIV intervention programme amongst commercial sex workers in Ahmedabad, Gujarat, India.		1															1										1				1		
Johnson,Bekker, Dorrington	2007	HIV/AIDS vaccination in adolescents would be efficient and practical when vaccine supplies are limited.								1													1						1				1		
Nagelkerke, Moses, de Vlas et al.	2007	Modelling the public health impact of male circumcision for HIV prevention in high prevalence areas in Africa.			1														1										1				1		
Nattrass	2007	Modelling the relationship between antiretroviral treatment and HIV prevention: limitations of the Spectrum AIDS Impact Model in a changing policy environment.	1																				1						1				1		
Rong, Feng, Perelson	2007	Emergence of HIV-1 drug resistance during antiretroviral treatment.	1								1																	1	1				1		
Sendi,Gunthard, Simcock, et al.	2007	Cost-effectiveness of genotypic antiretroviral resistance testing in HIV-infected patients with treatment failure.															1						1							1		1			
Van geertruyden, D'Alessandro	2007	Malaria and HIV: a silent alliance.											1	1	malaria													1			1			1
Abu-Raddad, Longini, Jr.	2008	No HIV stage is dominant in driving the HIV epidemic in sub-Saharan Africa.															1						1						1				1		
Atashili, Kalilani, Seksaria et al.	2008	Potential impact of infant feeding recommendations on mortality and HIV-infection in children born to HIV-infected mothers in Africa: a simulation.																			1								1				1		
Bacaer, Ouifki, Pretorius, et al.	2008	Modeling the joint epidemics of TB and HIV in a South African township.												1	TB														1				1		
Boily, Pickles, Vickerman, et al.	2008	Using mathematical modelling to investigate the plausibility of attributing observed antenatal clinic declines to a female sex worker intervention in Karnataka state, India.															1		1		1								1				1		
Deering, Vickerman, Moses, et al.	2008	The impact of out-migrants and out-migration on the HIV/AIDS epidemic: a case study from south-west India.															1								1				1				1		
Dowdy, Chaisson, Maartens, et al.	2008	Impact of enhanced tuberculosis diagnosis in South Africa: a mathematical model of expanded culture and drug susceptibility testing.												1	TB													1	1				1		
Hallett, Singh, Smith, et al.	2008	Understanding the impact of male circumcision interventions on the spread of HIV in southern Africa.			1																				1				1				1		
Lima, Johnston, Hogg, et al.	2008	Expanded access to highly active antiretroviral therapy: a potentially powerful strategy to curb the growth of the HIV epidemic.	1																				1						1				1		
Londish, Murray	2008	Significant reduction in HIV prevalence according to male circumcision intervention in sub-Saharan Africa.			1																		1						1				1		
Phillips, Pillay, Miners, et al.	2008	Outcomes from monitoring of patients on antiretroviral therapy in resource-limited settings with viral load, CD4 cell count, or clinical observation alone: a computer simulation model.														1							1							1		1		
Vissers, Voeten, Nagelkerke, et al.	2008	The impact of pre-exposure prophylaxis		1				1											1				1						1				1		
Walker, Hallett, White, et al.	2008	Interpreting declines in HIV prevalence: impact of spatial aggregation and migration on expected declines in prevalence.															1								1				1				1		
Wilson, Law, Grulich, et al.	2008	Relation between HIV viral load and infectiousness: a model-based analysis.															1								1				1				1		
Wilson, Coplan, Wainberg et al.	2008	The paradoxical effects of using antiretroviral-based microbicides to control HIV epidemics.					1				1														1					1		1		
Alsallaq, Cash, Weiss, et al.	2009	Quantitative assessment of the role of male circumcision in HIV epidemiology at the population level.			1																		1						1				1		
Basu, Maru,Poolman et al.	2009	Primary and secondary tuberculosis preventive treatment in HIV clinics: simulating alternative strategies.	1											1	TB		1												1				1		
Casals, Guzman, Cayla	2009	[Mathematical models used in the study of infectious diseases].											1															1			1			1
Cassels, Pearson, Kurth, et al.	2009	Discussion and revision of the mathematical modeling tool described in the previously published article		1																			1						1				1		
Cassels, Menza, Goodreau, et al.	2009	HIV serosorting as a harm reduction strategy: evidence from Seattle, Washington.		1														1											1				1		
Hallett, Gregson, Mugurungi, et al.	2009	Assessing evidence for behaviour change affecting the course of HIV epidemics: a new mathematical modelling approach and application to data from Zimbabwe.															1								1				1				1		
Kwon, Iversen, Maher, et al.	2009	The impact of needle and syringe programs on HIV and HCV transmissions in injecting drug users in Australia: a model-based analysis.				1								1	HCV					1									1				1		

Lou, Wu, Chen, et al.	2009	A sex-role-preference model for HIV transmission among men who have sex with men in China.	1							1									1												1			1		
Nagelkerke, de Vlas, Jha, et al.	2009	Heterogeneity in host HIV susceptibility as a potential contributor to recent HIV prevalence declines in Africa.																1						1							1			1		
Pan, Wu	2009	Population profiling in China by gender and age: implication for HIV incidences.																1						1							1			1		
Rao, Thomas, Sudhakar et al.	2009	HIV/AIDS epidemic in India and predicting the impact of the national response: mathematical modeling and analysis.																1						1							1			1		
Smith, Li, Gordon et al.	2009	Can we spend our way out of the AIDS epidemic? A world halting AIDS model.																1						1							1			1		
Tuli, Kerndt	2009	Preventing sexually transmitted infections among incarcerated men who have sex with men: a cost-effectiveness analysis.	1		1														1												1			1		
UNAIDS/WHO/SACEMA Expert modelling group	2009	Male circumcision for HIV prevention in high HIV prevalence settings: what can mathematical modelling contribute to informed decision making?				1																								1	1			1		
Wilson, Hoare, Regan et al.	2009	Importance of promoting HIV testing for preventing secondary transmissions: modelling the Australian HIV epidemic among men who have sex with men.										1							1													1		1		
Akpa, Oyejola	2010	Mathematical modeling of the epidemiology and the transmission dynamics of HIV/AIDS infections in Nigeria.																1						1									1		1	
Akpa, Oyejola	2010	Modeling the transmission dynamics of HIV/AIDS epidemics: an introduction and a review.											1																1				1			1
Bacaer, Pretorius, Auvert	2010	An age-structured model for the potential impact of generalized access to antiretrovirals on the South African HIV epidemic.	1		1																			1								1		1		
Baggaley, Fraser	2010	Modelling sexual transmission of HIV: testing the assumptions, validating the predictions.																1											1				1			1
Bezemer, de Wolf, Boerlijst, et al.	2010	27 years of the HIV epidemic amongst men having sex with men in the Netherlands: an in depth mathematical model-based analysis.	1																1												1			1		
Dimitrov, Masse, Boily	2010	Who will Benefit from a Wide-Scale Introduction of Vaginal Microbicides in Developing Countries?					1																		1						1			1		
Hsieh, Wang, de Arazoza et al.	2010	Modeling secondary level of HIV contact tracing: its impact on HIV intervention in Cuba.																1						1							1			1		
Johnston, Levy, Lima, et al.	2010	Expanding access to HAART: a cost-effective approach for treating and preventing HIV.	1																					1									1	1		
Londish, Templeton, Regan, et al.	2010	Minimal impact of circumcision on HIV acquisition in men who have sex with men.				1												1	1												1			1		
Long, Brandeau, Owens	2010	The cost-effectiveness and population outcomes of expanded HIV screening and antiretroviral treatment in the United States.	1																1		1										1			1		
Marks, Pillay, McLean	2010	The effect of intrinsic stochasticity on transmitted HIV drug resistance patterns.									1																			1		1		1		
McCabe, Goldie, Fisman	2010	The cost-effectiveness of directly observed highly-active antiretroviral therapy in the third trimester in HIV-infected pregnant women.	1																			1										1		1		
Mesa-Mazo, Vergano-Salazar, Sanchez-Botero et al.	2010	[A mathematical model representing HIV/AIDS transmission dynamics in a sexually-active population].																1							1						1			1		
Pretorius, Stover, Bollinger, et al.	2010	Evaluating the cost-effectiveness of pre-exposure prophylaxis							1															1							1			1		
Reidy, Goodreau	2010	The role of commercial sex venues in the HIV epidemic among men who have sex with men.																1	1												1			1		
Supervie, Garcia-Lerma, Heneine et al.	2010	HIV, transmitted drug resistance, and the paradox of preexposure prophylaxis.							1		1								1													1		1		
Vickerman, Ndowa, O'Farrell, et al.	2010	Using mathematical modelling to estimate the impact of periodic presumptive treatment on the transmission of sexually transmitted infections and HIV among female sex workers.												1	STI					1											1			1		
Walensky, Wood, Ciaranello, et al.	2010	Scaling up the 2010 World Health Organization HIV Treatment Guidelines in resource-limited settings: a model-based analysis.	1																											1		1		1		
Abbas, Hood, Wetzel et al.	2011	Factors influencing the emergence and spread of HIV drug resistance arising from rollout of antiretroviral pre-exposure prophylaxis							1		1													1								1			1		
Cambiano, Phillips	2011	Modelling the impact of treatment with individual antiretrovirals.																1												1			1			1
Corrales-Alvarez, de la Pava-Salgado, Hurtado-Tobon	2011	[HIV incidence in cases of tuberculosis in Armenia, Colombia].												1	TB									1							1			1		
Cuadros, Crowley, Augustine, et al.	2011	Effect of variable transmission rate on the dynamics of HIV in sub-Saharan Africa.												1	HSV										1							1		1		
Dushoff, Patocs, Shi	2011	Modeling the population-level effects of male circumcision as an HIV-preventive measure: a gendered perspective.				1																			1						1			1		
Eaton, Hallett, Garnett	2011	Concurrent sexual partnerships and primary HIV infection: a critical interaction.		1																					1							1		1		

Gray, Zhang, Lupiwa et al.	2011	Forecasting the Population-Level Impact of Reductions in HIV Antiretroviral Therapy in Papua New Guinea.	1																						1						1				1	
Hallett, Baeten, Heffron, et al.	2011	Optimal uses of antiretrovirals for prevention in HIV-1 serodiscordant heterosexual couples in South Africa: a modelling study.	1						1																1						1				1	
Johnson, White	2011	A review of mathematical models of HIV/AIDS interventions and their implications for policy.											1																	1			1			1
Johnson, Dorrington, Bradshaw et al.	2011	The effect of syndromic management interventions on the prevalence of sexually transmitted infections in South Africa.												1	STI										1						1				1	
Mushayabasa, Tchuenche, Bhunu et al.	2011	Modeling gonorrhea and HIV co-interaction.												1	gonorrhea															1	1				1	
Phillips,Pillay, Garnett, et al.	2011	Effect on transmission of HIV-1 resistance of timing of implementation of viral load monitoring to determine switches from first to second-line antiretroviral regimens in resource-limited settings.																1								1						1		1		
Punyacharoensin, Edmunds, De Angelis et al.	2011	Mathematical models for the study of HIV spread and control amongst men who have sex with men.											1							1													1			1
Shafer, White, Nsubuga, et al.	2011	The role of the natural epidemic dynamics and migration in explaining the course of the HIV epidemic in rural Uganda: a modelling study.																	1						1						1				1	
Walensky, Morris, Reichmann, et al.	2011	Resource utilization and cost-effectiveness of counselor- vs. provider-based rapid point-of-care HIV screening in the emergency department.																	1										1			1		1		
Waters, Ostermann, Reeves, et al.	2011	A cost-effectiveness analysis of alternative HIV retesting strategies in sub-saharan Africa.										1														1					1				1	
Wilson, Fairley, Sankar, et al.	2011	Replacement of conventional HIV testing with rapid testing: mathematical modelling to predict the impact on further HIV transmission between men.										1								1													1	1		
Alarcon, Pun, Gutierrez, et al.	2012	[Estimation and analysis of HIV incidence in the adult population in Peru: results of application of the MoT mathematical model].																	1	1	1					1						1		1	
Andrews, Wood,Bekker, et al.	2012	Projecting the benefits of antiretroviral therapy for HIV prevention: the impact of population mobility and linkage to care.	1																						1						1				1	
Barnighausen, Bloom, Humair	2012	Economics of antiretroviral treatment vs. circumcision for HIV prevention.	1			1																			1						1				1	
de Vos, van der Helm, Prins et al.	2012	Determinants of persistent spread of HIV in HCV-infected populations of injecting drug users.												1	HCV							1									1				1	
Estill, Aubriere,Egger, et al.	2012	Viral load monitoring of antiretroviral therapy, cohort viral load and HIV transmission in Southern Africa: a mathematical modelling analysis.	1																								1	1			1		1		
Johnson, Stinson, Newell, et al.	2012	The contribution of maternal HIV seroconversion during late pregnancy and breastfeeding to mother-to-child transmission of HIV.						1															1								1				1	
Johnson, Davies, Moultrie, et al.	2012	The effect of early initiation of antiretroviral treatment in infants on pediatric AIDS mortality in South Africa: a model-based analysis.						1															1								1				1	
Johnson, Dorrington, Bradshaw et al.	2012	The role of sexually transmitted infections in the evolution of the South African HIV epidemic.												1	STI											1					1				1	
Li, Gilmour, Zhang, et al.	2012	The epidemiological impact and cost-effectiveness of HIV testing, antiretroviral treatment and harm reduction programs.	1									1							1						1						1				1	
Luo, Piovoso, Martinez-Picado et al.	2012	HIV model parameter estimates from interruption trial data including drug efficacy and reservoir dynamics.	1																						1						1				1	
Morris, Scott,Wilkin, et al.	2012	Cost-effectiveness of adding an agent that improves immune responses to initial antiretroviral therapy																	1											1		1		1		
Negoescu, Owens,Brandeau et al.	2012	Balancing immunological benefits and cardiovascular risks of antiretroviral therapy: when is immediate treatment optimal?	1																											1		1		1		
Palombi, Bernava, Nucita, et al.	2012	Predicting trends in HIV-1 sexual transmission in sub-Saharan Africa through the Drug Resource Enhancement Against AIDS and Malnutrition model: antiretrovirals for 5 reduction of population infectivity, incidence and prevalence at the district level.	1																						1							1		1		
Sorensen, Sansom, Brooks, et al.	2012	A mathematical model of comprehensive test-and-treat services and HIV incidence among men who have sex with men in the United States.	1									1								1											1				1	
van Sighem, Vidondo, Glass, et al.	2012	Resurgence of HIV infection among men who have sex with men in Switzerland: mathematical modelling study.	1																	1											1				1	
Vanni, Luz, Grinsztejn, et al.	2012	Cervical cancer screening among HIV-infected women: an economic evaluation in a middle-income country.												1	cervical cancer													1				1		1		
Wagner, Blower	2012	Universal access to HIV treatment versus universal 'test and treat': transmission, drug resistance & treatment costs.										1														1					1				1	
Zhang, Gray, Wilson	2012	Modelling the epidemiological impact of scaling up HIV testing and antiretroviral treatment in China.	1									1																		1	1				1	
Zhang, Zhong, Romero-Severson, et al.	2012	Episodic HIV Risk Behavior Can Greatly Amplify HIV Prevalence and the Fraction of Transmissions from Acute HIV Infection.		1																										1	1				1	
Abbas, Glaubius, Mubayi, et al.	2013	Antiretroviral therapy and pre-exposure prophylaxis: combined impact on HIV transmission and drug resistance in South Africa.	1						1																1						1	1				1

Abuelezam, Rough, Seage, 3rd	2013	Individual-based simulation models of HIV transmission: reporting quality and recommendations.											1																1				1			1
Boily, Pickles, Lowndes, et al.	2013	Positive impact of a large-scale HIV prevention programme among female sex workers and clients in South India.																1		1										1				1		
Castro Sanchez, Aerts, Shkedy, et al.	2013	A mathematical model for HIV and hepatitis C co-infection and its assessment from a statistical perspective.												1	HCV+TB						1										1			1		
Chemaitelly, Abu-Raddad	2013	External infections contribute minimally to HIV incidence among HIV sero-discordant couples in sub-Saharan Africa.														1								1						1				1		
De Vos, Kretzschmar	2013	The efficiency of targeted intervention in limiting the spread of HIV and Hepatitis C Virus among injecting drug users.												1	HCV						1									1				1		
Dilernia, Monaco, Cesar, et al.	2013	Estimation of HIV-testing rates to maximize early diagnosis-derived benefits at the individual and population level.										1																	1		1		1			
Dimitrov, Masse, Boily	2013	Beating the placebo in HIV prevention efficacy trials: the role of the minimal efficacy bound.					1		1																1					1				1		
Dodd, Knight, Lawn, et al.	2013	Predicting the long-term impact of antiretroviral therapy scale-up on population incidence of tuberculosis.	1											1	TB									1						1				1		
Eaton, Menzies, Stover, et al.	2013	Health benefits, costs, and cost-effectiveness of earlier eligibility for adult antiretroviral therapy and expanded treatment coverage: a combined analysis of 12 mathematical models.	1																					1							1		1			
Estill, Egger, Johnson, et al.	2013	Monitoring of antiretroviral therapy and mortality in HIV programmes in Malawi, South Africa and Zambia: mathematical modelling study.	1																					1							1		1			
Estill, Egger, Blaser, et al.	2013	Cost-effectiveness of point-of-care viral load monitoring of antiretroviral therapy in resource-limited settings: mathematical modelling study.	1																								1	1			1		1			
Hontelez, Lurie, Barnighausen, et al.	2013	Elimination of HIV in South Africa through expanded access to antiretroviral therapy: a model comparison study.											1																1			1			1
Jozaghi, Reid, Andresen	2013	A cost-benefit/cost-effectiveness analysis of proposed supervised injection facilities in Montreal, Canada.				1															1									1				1		
Kato, Granich, Bui, et al.	2013	The potential impact of expanding antiretroviral therapy and combination prevention in Vietnam: towards elimination of HIV transmission.			1							1																		1				1		
Kretzschmar, Schim van der Loeff, Birrell, et al.	2013	Prospects of elimination of HIV with test-and-treat strategy.	1															1											1	1				1		
Lungu, Massaro, Ndelwa, et al.	2013	Mathematical modeling of the HIV/Kaposi's sarcoma coinfection dynamics in areas of high HIV prevalence.	1											1	Karposi sarcoma									1						1				1		
Maredza, Bertram, Saloojee, et al.	2013	Cost-effectiveness analysis of infant feeding strategies to prevent mother-to-child transmission of HIV in South Africa.																1				1	1							1				1		
Mumtaz, Kouyoumjian, Hilmi, et al.	2013	The distribution of new HIV infections by mode of exposure in Morocco.																1	1	1	1				1						1			1		
Ndeffo Mbah, Kjetland, Atkins, et al.	2013	Cost-effectiveness of a community-based intervention for reducing the transmission of Schistosoma haematobium and HIV in Africa.	1											1	Schistosoma haematobium													1		1				1		
Nichols, Boucher, van Dijk, et al.	2013	Cost-effectiveness of pre-exposure prophylaxis (PrEP) in preventing HIV-1 infections in rural Zambia: a modeling study.							1																	1					1			1		
Nosyk, Min, Lima, et al.	2013	HIV-1 disease progression during highly active antiretroviral therapy: an application using population-level data in British Columbia: 1996-2011.	1																					1							1		1			
Ona, Kouyos, Lachmann et al.	2013	On the role of resonance in drug failure under HIV treatment interruption.	1								1																		1	1	1		1			
Selinger, Katze	2013	Mathematical models of viral latency.											1																1			1			1
Sood, Wagner, Jaycocks, et al.	2013	Test-and-treat in Los Angeles: a mathematical model of the effects of test-and-treat for the population of men who have sex with men in Los Angeles County.	1									1							1											1				1		
van de Vijver, Nichols, Abbas, et al.	2013	Preexposure prophylaxis will have a limited impact on HIV-1 drug resistance in sub-Saharan Africa: a comparison of mathematical models.							1															1						1				1		
Wagner, Coburn, Blower	2013	Increasing survival time decreases the cost-effectiveness of using "test & treat" to eliminate HIV epidemics										1												1						1				1		
Xiridou, Vriend, Lugner, et al.	2013	Modelling the impact of chlamydia screening on the transmission of HIV among men who have sex with men.												1	chlamydia				1											1				1		
Abu-Raddad, Awad	2014	How does population viral load vary with the evolution of a large HIV epidemic in sub-Saharan Africa?	1																					1						1					1
Alistar, Grant, Bendavid	2014	Comparative effectiveness and cost-effectiveness of antiretroviral therapy and pre-exposure prophylaxis for HIV prevention in South Africa.	1						1									1						1							1			1		
Anderson, Cherutich, Kilonzo, et al.	2014	Maximising the effect of combination HIV prevention through prioritisation of the people and places in greatest need: a modelling study.	1	1		1			1										1	1				1							1			1		
Angeletti, Pezzotti, Antinori, et al.	2014	Antiretroviral treatment-based cost saving interventions may offset expenses for new patients and earlier treatment start.	1																					1						1				1		
Awad, Abu-Raddad	2014	Could there have been substantial declines in sexual risk behavior across sub-Saharan Africa in the mid-1990s?		1																				1						1				1		

Birger, Hallett, Sinha, et al.	2014	Modeling the impact of interventions along the HIV continuum of care in Newark, New Jersey.																1						1						1				1		
Boily, Shubber	2014	Modelling in concentrated epidemics: informing epidemic trajectories and assessing prevention approaches.										1						1	1	1											1			1
Carvalho, Pinto	2014	A coinfection model for HIV and HCV.											1	HCV										1						1				1		
Chemaitelly, Awad, Shelton et al.	2014	Sources of HIV incidence among stable couples in sub-Saharan Africa.	1												1									1						1		1			
Cuadros, Abu-Raddad, Awad et al.	2014	Use of agent-based simulations to design and interpret HIV clinical trials.			1								1	HSV															1			1			1
Eaton, Hallett	2014	Why the proportion of transmission during early-stage HIV infection does not predict the long-term impact of treatment on HIV incidence.	1																						1					1				1	
Estill, Tweya, Egger, et al.	2014	Tracing of patients lost to follow-up and HIV transmission: mathematical modeling study based on 2 large ART programs in Malawi.																1						1							1		1		
Katz, Cassels, Stekler	2014	Replacing clinic-based tests with home-use tests may increase HIV prevalence among Seattle men who have sex with men: evidence from a mathematical model.												1					1											1				1	
Keebler, Revill, Braithwaite, et al.	2014	Cost-effectiveness of different strategies to monitor adults on antiretroviral treatment: a combined analysis of three mathematical models.										1																	1			1			1
Kessler, Myers, Nucifora, et al.	2014	Evaluating the impact of prioritization of antiretroviral pre-exposure prophylaxis in New York.	1																					1						1			1		
Khanna, Dimitrov, Goodreau	2014	What can mathematical models tell us about the relationship between circular migrations and HIV transmission dynamics?																1											1	1	1		1	1	
Kim, Yoon, Ku, et al.	2014	Mathematical modeling of HIV prevention measures including pre-exposure prophylaxis on HIV incidence in South Korea.	1						1									1	1											1				1	
Lilian, Johnson, Moolla et al.	2014	A mathematical model evaluating the timing of early diagnostic testing in HIV-exposed infants in South Africa.	1									1											1								1		1		
Lima, Thirumurthy, Kahn, et al.	2014	Modeling scenarios for the end of AIDS.											1																1			1			1
Lou, Blevins, Ruan, et al.	2014	Modeling the impact on HIV incidence of combination prevention strategies among men who have sex with men in Beijing, China.	1															1	1											1				1	
McNaghten, Kearns, Siegler, et al.	2014	Sibanye Methods for Prevention Packages Program Project Protocol: Pilot Study of HIV Prevention Interventions for Men Who Have Sex With Men in South Africa.																1	1												1	1		
Mishra, Mountain, Pickles, et al.	2014	Exploring the population-level impact of antiretroviral treatment: the influence of baseline intervention context.	1		1															1										1			1	
Mishra, Pickles, Blanchard, et al.	2014	Distinguishing sources of HIV transmission from the distribution of newly acquired HIV infections: why is it important for HIV prevention planning?																1						1						1			1	
Nagelkerke, Arora, Jha, et al.	2014	The rise and fall of HIV in high-prevalence countries: a challenge for mathematical modeling.											1																1			1			1
Nichols, Sigaloff, Kityo, et al.	2014	Averted HIV infections due to expanded antiretroviral treatment eligibility offsets risk of transmitted drug resistance: a modeling study.	1								1													1						1			1	
Nichols, Sigaloff, Kityo, et al.	2014	Increasing the use of second-line therapy is a cost-effective approach to prevent the spread of drug-resistant HIV: a mathematical modelling study.	1								1													1						1			1	
Nichols, Baltussen, van Dijk, et al.	2014	Cost-effectiveness of PrEP in HIV/AIDS control in Zambia: a stochastic league approach.							1															1						1			1	
Paquette, Schanzer, Guo, et al.	2014	The impact of HIV treatment as prevention in the presence of other prevention strategies: lessons learned from a review of mathematical models set in resource-rich countries.											1																1			1			1
Phillips, Cambiano, Miners, et al.	2014	Effectiveness and cost-effectiveness of potential responses to future high levels of transmitted HIV drug resistance in antiretroviral drug-naive populations beginning treatment: modelling study and economic analysis.									1														1						1		1	
Phillips, Cambiano, Nakagawa, et al.	2014	Potential future impact of a partially effective HIV vaccine in a southern African setting.								1														1						1			1	
Phillips, Cambiano, Nakagawa, et al.	2014	Cost-effectiveness of HIV drug resistance testing to inform switching to second line antiretroviral therapy in low income settings.															1							1						1			1	
Pretorius, Menzies, Chindelevitch, et al.	2014	The potential effects of changing HIV treatment policy on tuberculosis outcomes in South Africa: results from three tuberculosis-HIV transmission models.											1	TB															1	1				1	
Rahman, Vaidya, Zou	2014	Impact of Tenofovir gel as a PrEP on HIV infection: a mathematical model.							1															1						1				1	
Salazar-Vizcaya, Keiser, Karl, et al.	2014	Viral load versus CD4 monitoring and 5-year outcomes of ART in HIV-positive children in Southern Africa: cohort-based modelling study															1							1							1	1		
Shafer, Nsubuga, Chapman, et al.	2014	The dual impact of antiretroviral therapy and sexual behaviour changes on HIV epidemiologic trends in Uganda: a modelling study.	1	1																				1						1			1	
Tsertsvadze, Chkhartishvili, Dvali, et al.	2014	Estimating HIV incidence in eastern European country of Georgia: 2010-2012.																1						1						1			1	

Viljoen, Spoelstra, Hemerik et al.	2014	Modelling the impact of HIV on the populations of South Africa and Botswana.																1						1						1				1		
White, Fox, Weber, et al.	2014	How Many HIV infections may be averted by targeting primary infection in men who have sex with men? Quantification of changes in transmission-risk behavior, using an individual-based model.		1															1												1		1		
Wirtz, Pretorius, Beyrer, et al.	2014	Epidemic impacts of a community empowerment intervention for HIV prevention among female sex workers in generalized and concentrated epidemics.		1																1										1				1	
Wu, Wang	2014	[A review on HIV/AIDS dynamic mathematical models in China].											1																1			1			1
Wu, Norris, Jia et al.	2014	HIV treatment as prevention: contradictory perspectives from dynamic mathematical models.											1																1			1			1
Alvey, Feng, Glasser	2015	A model for the coupled disease dynamics of HIV and HSV-2 with mixing among and between genders.												1	HSV									1	1				1				1	
Apenteng, Ismail	2015	A Markov Chain Monte Carlo Approach to Estimate AIDS after HIV Infection.																											1				1	
Artzrouni, Leonenko, Mara	2015	A syringe-sharing model for the spread of HIV: application to Omsk, Western Siberia.																			1								1				1	
Awad, Sgaier, Tambatamba, et al.	2015	Investigating Voluntary Medical Male Circumcision Program Efficiency Gains through Subpopulation Prioritization: Insights from Application to Zambia.			1																			1					1				1	
Blaizot, Riche, Maman, et al.	2015	Estimation and Short-Term Prediction of the Course of the HIV Epidemic Using Demographic and Health Survey Methodology-Like Data.																1						1						1				1	
Boily, Pickles, Alary, et al.	2015	What really is a concentrated HIV epidemic and what does it mean for West and Central Africa? Insights from mathematical modeling.																1		1										1				1	
Cambiano, Ford, Mabugu, et al.	2015	Assessment of the Potential Impact and Cost-effectiveness of Self-Testing for HIV in Low-Income Countries.										1												1							1			1	
Caro-Vega, del Rio, Lima, et al.	2015	Estimating the Impact of Earlier ART Initiation and Increased Testing Coverage on HIV Transmission among Men Who Have Sex with Men in Mexico using a Mathematical Model.	1																1											1				1	
Cerda, Perez, Domingues, et al.	2015	Prenatal Transmission of Syphilis and Human Immunodeficiency Virus in Brazil: Achieving Regional Targets for Elimination.						1														1								1				1	
Chindelevitch, Menzies, Pretorius, et al.	2015	Evaluating the potential impact of enhancing HIV treatment and tuberculosis control programmes on the burden of tuberculosis.	1											1	TB									1						1				1	
Cremin,Morales, Jewell, et al.	2015	Seasonal PrEP for partners of migrant miners in southern Mozambique: a highly focused PrEP intervention.							1																1					1				1	
Delaney, Rosenberg, Kramer, et al.	2015	Optimizing Human Immunodeficiency Virus Testing Interventions for Men Who Have Sex With Men in the United States: A Modeling Study.										1							1													1			1
Dimitrov, Donnell, Brown	2015	High incidence is not high exposure: what proportion of prevention trial participants are exposed to HIV?		1																								1			1		1		
Dimitrov,Kublin, Ramsey et al.	2015	Are Clade Specific HIV Vaccines a Necessity? An Analysis Based on Mathematical Models.								1									1						1					1				1	
Eaton, Bacaer, Bershteyn, et al.	2015	Assessment of epidemic projections using recent HIV survey data in South Africa: a validation analysis of ten mathematical models of HIV epidemiology in the antiretroviral therapy era.											1																1			1			1
Estill, Salazar-Vizcaya, Blaser, et al.	2015	The cost-effectiveness of monitoring strategies for antiretroviral therapy of HIV infected patients in resource-limited settings: software tool.	1																										1	1				1	
Fryer, Van Tienen, Van Der Loeff, et al.	2015	Predicting the extinction of HIV-2 in rural Guinea-Bissau.																1						1						1				1	
Johnson, Rehle, Jooste et al.	2015	Rates of HIV testing and diagnosis in South Africa: successes and challenges.										1												1						1				1	
Jozaghi, Jackson	2015	Examining the potential role of a supervised injection facility in Saskatoon, Saskatchewan, to avert HIV among people who inject drugs.																			1									1				1	
Kessler, Ruggles, Patel, et al.	2015	Targeting an alcohol intervention cost-effectively to persons living with HIV/AIDS in East Africa.																1						1						1				1	
Khanna, Roberts, Cassels, et al.	2015	Estimating PMTCT's Impact on Heterosexual HIV Transmission: A Mathematical Modeling Analysis.						1														1									1		1		
Kimmel, Fitzgerald, Pape et al.	2015	Performance of a mathematical model to forecast lives saved from HIV treatment expansion in resource-limited settings.																1						1								1			1
Klein, Eckhof, Bershteyn	2015	Targeting HIV services to male migrant workers in southern Africa would not reverse generalized HIV epidemics in their home communities: a mathematical modeling analysis.																1									1				1	1		
Luo, Han, Lu, et al.	2015	Evaluating the Impact of Test-and-Treat on the HIV Epidemic among MSM in China Using a Mathematical Model.	1									1							1											1				1	
Martin,MacDonald, Smith, et al.	2015	Modeling the Declining Positivity Rates for Human Immunodeficiency Virus Testing in New York State.										1												1						1				1	
Nichols, Gotz, van Gorp, et al.	2015	Partner Notification for Reduction of HIV-1 Transmission and Related Costs among Men Who Have Sex with Men: A Mathematical Modeling Study.																1	1											1				1	

Nosyk, Min, Lima, et al.	2015	Cost-effectiveness of population-level expansion of highly active antiretroviral treatment for HIV in British Columbia, Canada: a modelling study.	1																													1				1	
Nyabadza, Bekele, Rua, et al.	2015	The Implications of HIV Treatment on the HIV-Malaria Coinfection Dynamics: A Modeling Perspective.												1	malaria															1	1				1	
Phillips, Shroufi, Vojnov, et al.	2015	Sustainable HIV treatment in Africa through viral-load-informed differentiated care.															1						1							1			1			
Rehle, Johnson, Hallett, et al.	2015	A Comparison of South African National HIV Incidence Estimates: A Critical Appraisal of Different Methods.																1					1							1				1	
Vynnycky, Sumner, Fielding, et al.	2015	Tuberculosis control in South African gold mines: mathematical modeling of a trial of community-wide isoniazid preventive therapy.												1	TB													1		1				1	
Abuelezam, McCormick, Fussell, et al.	2016	Can the Heterosexual HIV Epidemic be Eliminated in South Africa Using Combination Prevention? A Modeling Analysis.	1		1	1						1						1		1			1								1		1		
Blaser, Zahnd, Hermans, et al.	2016	Tuberculosis in Cape Town: An age-structured transmission model.	1											1	TB								1								1		1		
Champredon, Cameron, Smieja et al.	2016	Epidemiological impact of a syphilis vaccine: a simulation study.												1	Syphillis									1						1			1	
Chang, Moog, Astolfi	2016	Occurrence of HIV eradication for preexposure prophylaxis treatment with a deterministic HIV model.							1														1							1			1		
Dimitrov, Masse, Donnell	2016	PrEP Adherence Patterns Strongly Affect Individual HIV Risk and Observed Efficacy in Randomized Clinical Trials.							1															1		1				1		1		
Dimitrov, Boily, Hallett, et al.	2016	How Much Do We Know about Drug Resistance Due to PrEP Use? Analysis of Experts' Opinion and Its Influence on the Projected Public Health Impact.							1															1						1			1	
Enns, Zaric, Strike, et al.	2016	Potential cost-effectiveness of supervised injection facilities in Toronto and Ottawa, Canada.												1	HCV				1		1		1							1			1	
Estill, Salazar-Vizcaya, Haas, et al.	2016	The need for second-line antiretroviral therapy in adults in sub-Saharan Africa up to 2030: a mathematical modelling study.	1																				1							1			1	
Girouard, Sax, Parker, et al.	2016	The Cost-effectiveness and Budget Impact of 2-Drug Dolutegravir-Lamivudine Regimens for the Treatment of HIV Infection in the United States.	1																				1								1		1	
Glaubius, Parikh, Hood, et al.	2016	Deciphering the Effects of Injectable Pre-exposure Prophylaxis for Combination Human Immunodeficiency Virus Prevention.							1		1												1							1			1	
Hsieh, Lin	2016	Current Trends and Future Projection of HIV/AIDS Epidemic in Taiwan: A Modeling Analysis.	1																		1									1			1	
Jenness, Goodreau, Rosenberg, et al.	2016	Impact of the Centers for Disease Control's HIV Preexposure Prophylaxis Guidelines for Men Who Have Sex With Men in the United States.							1										1												1		1	
Jenness, Goodreau, Morris et al.	2016	Effectiveness of combination packages for HIV-1 prevention in sub-Saharan Africa depends on partnership network structure: a mathematical modelling study.				1																		1							1		1	
Johnson, Chiu, Myer, et al.	2016	Prospects for HIV control in South Africa: a model-based analysis.	1	1	1			1															1							1			1	
Kripke, Perales, Lija, et al.	2016	The Economic and Epidemiological Impact of Focusing Voluntary Medical Male Circumcision for HIV Prevention on Specific Age Groups and Regions in Tanzania.				1																	1							1			1	
Kumberger, Frey, Schwarz et al.	2016	Multiscale modeling of virus replication and spread.											1																1			1			1
Kunkel, Crawford, Shepherd et al.	2016	Benefits of continuous isoniazid preventive therapy may outweigh resistance risks in a declining tuberculosis/HIV coepidemic.												1	TB								1							1			1	
Lutambi	2016	The effect of delayed death in HIV/AIDS models.																1					1							1			1	
McGillen, Anderson, Dybul et al.	2016	Optimum resource allocation to reduce HIV incidence across sub-Saharan Africa: a mathematical modelling study.																1						1						1			1	
Mitchell, Prudden, Washington, et al.	2016	Potential impact of pre-exposure prophylaxis for female sex workers and men who have sex with men in Bangalore, India: a mathematical modelling study.							1											1										1			1	
Nichols, Boucher, van der Valk, et al.	2016	Cost-effectiveness analysis of pre-exposure prophylaxis for HIV-1 prevention in the Netherlands: a mathematical modelling study.							1										1											1			1	
Olney, Braitstein, Eaton, et al.	2016	Evaluating strategies to improve HIV care outcomes in Kenya: a modelling study.																1					1								1		1	
Pham, Wilson, Nguyen, et al.	2016	Projecting the epidemiological effect, cost-effectiveness and transmission of HIV drug resistance in Vietnam associated with viral load monitoring strategies.															1						1							1			1	
Phillips, Cambiano, Nakagawa, et al.	2016	Cost Effectiveness of Potential ART Adherence Monitoring Interventions in Sub-Saharan Africa.															1						1							1		1		
Punyacharoensin, Edmunds, De Angelis, et al.	2016	Effect of pre-exposure prophylaxis and combination HIV prevention for men who have sex with men in the UK: a mathematical modelling study.							1										1											1			1	
Rahman, Vaidya, Zou	2016	Impact of early treatment programs on HIV epidemics: An immunity-based mathematical model.							1																				1	1			1	

Roberts, Khanna, Barnabas, et al.	2016	Estimating the impact of universal antiretroviral therapy for HIV serodiscordant couples through home HIV testing: insights from mathematical models.	1									1						1										1			1		1	
Ross, Cinti, Hutton	2016	Implementation and Operational Research: A Cost-Effective, Clinically Actionable Strategy for Targeting HIV Preexposure Prophylaxis to High-Risk Men Who Have Sex With Men.							1										1												1		1	
Sanchez-Gonzalez	2016	The cost-effectiveness of treating triple coinfection with HIV, tuberculosis and hepatitis C virus.												1	TB and HCV								1						1				1	
Shah, Risher, Berry et al.	2016	The Epidemiologic and Economic Impact of Improving HIV Testing, Linkage, and Retention in Care in the United States.										1						1	1		1				1						1			1	
Sharma, Farquhar, Ying, et al.	2016	Modeling the Cost-Effectiveness of Home-Based HIV Testing and Education										1										1									1			1	
Tweya, Keiser, Haas, et al.	2016	Comparative cost-effectiveness of Option B+ for prevention of mother-to-child transmission of HIV in Malawi.	1																			1										1	1	
Ying, Sharma, Celum, et al.	2016	Home testing and counselling to reduce HIV incidence in a generalised epidemic setting: a mathematical modelling analysis.										1						1					1								1			1	
Zahnd, Salazar-Vizcaya, Dufour, et al.	2016	Modelling the impact of deferring HCV treatment on liver-related complications in HIV coinfected men who have sex with men.												1	HCV or liver				1												1		1	
Akudibillah, Pandey, Medlock	2017	Maximizing the benefits of ART and PrEP in resource-limited settings.	1						1														1									1		1
Awad,Sgaier, Lau, et al.	2017	Could Circumcision of HIV-Positive Males Benefit Voluntary Medical Male Circumcision Programs in Africa? Mathematical Modeling Analysis.				1																				1			1				1	
Jenness, Sharma, Goodreau, et al.	2017	Individual HIV Risk versus Population Impact of Risk Compensation after HIV Preexposure Prophylaxis Initiation among Men Who Have Sex with Men.							1										1												1		1	
Nakagawa	2017	An epidemiological modelling study to estimate the composition of HIV-positive populations including migrants from endemic settings.																1										1			1		1	
Phillips, Stover, Cambiano, et al.	2017	Impact of HIV drug resistance on HIV/AIDS associated mortality, new infections and antiretroviral therapy program costs in sub-Saharan Africa.	1								1												1								1			1
Smith, Heffron, Butler, et al.	2017	Could misreporting of condom use explain the observed association between injectable hormonal contraceptives and HIV acquisition risk?			1																						1				1		1	