

A Systematic Review and Meta-analysis to Estimate the Time from HIV Infection to Diagnosis for People with HIV

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Supplemental Table 1. Summary of findings of eligible studies for the systematic review, k = 11

First author, year	Study design	Study setting	Data source	Study population	Model name	Year	Sample size	Mean* ± SD (years)	95% CI	IQR
Birrell et al., 2012 ³¹	Ecological	England and Wales	UK Health Protection Agency National HIV database linked to a database of CD4 counts	Newly diagnosed MSM	CD4-based Bayesian back-calculation model	2010	--	3.30	--	--
Birrell et al., 2013 ¹⁷	Ecological	England and Wales	National HIV database	Newly diagnosed MSM attending STI clinics	CD4-staged back-calculation HIV transmission model	2001	1640	4.00	3.80-4.20 ^b	--
						2010	2500	3.20	2.60-3.80 ^b	--
Dailey et al., 2017 ³²	Ecological	United States	CD4 Surveillance scheme/ Genitourinary Medicine Clinic Activity Dataset	Newly diagnosed HIV cases aged 13 years and above	CD4-depletion model	2015	39720	3.00 ^a	--	0.70-7.80
Fellows et al., 2015 ³⁶	Ecological	United States	CDC National HIV Surveillance System from 50 states and the District of Columbia	Newly diagnosed MSM	Back-calculation modeling	2006-2012	1522	3.12	--	--
Hall et al., 2015 ¹⁸	Ecological	United States	The enhanced HIV/AIDS reporting system, the CDC treatment, and testing history questionnaire, and data collected through HIV partner services of Public Health – Seattle and King County	Newly diagnosed HIV cases aged 13 years and above	CD4-depletion model	2003	--	7.00	6.90-7.10	--
						2011	--	5.60	5.50-5.60	--
Li et al., 2018 ³⁴	Cross-sectional	China	CDC National HIV Surveillance System from 33 jurisdictions	Newly diagnosed HIV cases aged ≥13 years at the time of diagnosis and having acquired HIV through heterosexual contact, male-to-male sexual contact, or injecting drug use	CD4-depletion model	2008-2015	5867	6.30	6.20-6.50	--
Marty et al., 2018 ³³	Ecological	France	HIV/AIDS Comprehensive Response Information Management System	Newly diagnosed HIV cases	Back-calculation modeling	2011-2014	6607	3.30 ^a	--	1.20-5.70
Ndawinz et al., 2011 ³⁰	Ecological	France	Institut de Veille Sanitaire	MSM	Back-calculation modeling	2004	2700	2.05 ^a	--	0.33-4.53
				French-national heterosexual men		1300	3.78 ^a	--	1.51-6.54	
				Non-French-national heterosexual men		950	3.96 ^a	--	1.79-6.40	
				Non-French-national heterosexual women		1300	3.01 ^a	--	1.33-4.97	
				IDU		120	3.12 ^a	--	1.21-5.55	
				French-national heterosexual women		800	4.06 ^a	--	2.28-5.87	
				MSM		2007	2969	2.18 ^a	--	0.47-4.63
				French-national heterosexual men		1399	3.74 ^a	--	1.45-6.51	
				Non-French-national heterosexual men		1015	3.97 ^a	--	1.81-6.40	
				Non-French-national heterosexual women		1454	2.97 ^a	--	1.27-4.93	
Stirrup et al., 2018 ³⁵	Cross-sectional	United Kingdom	UK Collaborative HIV Cohort	MSM at least 18 years at time of HIV diagnosis	Bayesian statistical model	2009-2013	3521	2.87	--	--
						CD4 back-estimation	4.12	--	--	
						Full biomarker model with exponential survival model for diagnosis (constant incidence)	1.82	1.64-2.04 ^b	--	
						Full biomarker model with exponential survival model for diagnosis (changing incidence)	1.77	1.59-1.96 ^b	--	
Taffe et al., 2008 ²⁸	Cross-sectional	Switzerland	Swiss HIV Cohort Study	All patients except those infected with HIV at birth	CD4 back-calculation	1992-2008	4079	4.80	--	3.20-5.70
vanSighem et al., 2015 ¹⁹	Ecological	The Netherlands	Surveillance data from the AIDS Therapy Evaluation in The Netherlands national observational HIV cohort and the National Institute of Public Health and the Environment in The Netherlands	MSM	Multi-state back-calculation modeling	1996-2011	--	2.60	2.30-3.00	--
Wand et Wal., 2009 ²⁹	Ecological	Australia	Australian HIV/AIDS surveillance system	MSM	Modified back-projection technique	1996	838	4.68** (0.49)	--	--
						1997	742	3.90** (0.52)	--	--
						1998	669	3.48** (0.55)	--	--
						1999	647	2.22** (0.54)	--	--
						2000	687	2.27** (0.52)	--	--
						2001	682	1.05** (0.50)	--	--
						2002	756	1.04** (0.49)	--	--
						2003	784	1.35** (0.49)	--	--
						2004	778	0.76** (0.47)	--	--
						2005	861	1.02** (0.46)	--	--
2006	849	1.05** (0.43)	--	--						
2007	842	0.72** (0.47)	--	--						

*Meantime from HIV infection to diagnosis.
 **Not reported --; subtracted mean age at infection from mean age at diagnosis.
^aMedian time from HIV infection to diagnosis.
^b95% credible interval.
 CDC: centers for disease prevention and control; CI: confidence interval; IDU: injection drug use; IQR: interquartile range; MSM: men who have sex with men; SD: standard deviation; STI: sexually transmitted infections.

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Supplemental Table 2. Search strategy to identify studies reporting time from HIV infection to diagnosis

Database	Centered
MEDLINE	"Acquired Immunodeficiency Syndrome" [Mesh] OR "HIV" [Mesh] "Human immunodeficiency virus" OR "human immune deficiency virus" OR HIV OR AIDS OR "acquired immune deficiency syndrome virus" OR "acquired immunodeficiency syndrome virus" OR HIV1 OR HIV2 AND ("back-calculation*" OR "back calculation*" OR "stratified extrapolation" OR "CD4 depletion" OR hierarchical OR Bayesian)
Embase	("Human immunodeficiency virus"/exp OR "acquired immune deficiency syndrome"/exp "Human immunodeficiency virus" OR "human immune deficiency virus" OR HIV OR AIDS OR "acquired immune deficiency syndrome virus" OR "acquired immunodeficiency syndrome virus" OR HIV1 OR HIV2)AND ("back calculation*" OR back-calculation OR "stratified extrapolation" OR "cd4 depletion" OR hierarchical OR bayesian OR markov)