

SUPPLEMENTARY APPENDICES.

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APPENDIX A: PRISMA STATEMENT

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	NA
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	4 (Box 1)
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4 (Box 1)
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	4 (Box 1)
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	3-4, Figure 1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	3-4, Figure 1
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	4-9
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	8-12
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	9-10, Appendices
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6-9

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	5-8,10,11
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	5-8
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	9 (Figure 2)
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Appendices
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	9-11, Appendices
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	NA
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	NA
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	9-11, Appendices
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	9-11, Appendices
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	9-12
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	9-12
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	9-12
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	13

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: www.prisma-statement.org.

APPENDIX B: PROPORTION OF CONFIRMED CT CASES DIAGNOSED AT BIRTH BY *TOXOPLASMA*-SPECIFIC IgM SEROLOGY.

Study	Positive IgM tests at birth	Infants subsequently confirmed with CT	Sensitivity (%)
Bessieres et al. 2001 ¹	25	57	43.9
Gilbert et al. 2007 ²	83	160	51.9
Rodrigues et al. 2009 ³	12	28	42.8
Wallon et al 1999 ⁴	85	140	60.7
Total	205	385	53.2

APPENDIX C: Method to estimate the probability of an IgM positive pregnant woman having seroconverted during the pregnancy.

The probability of a pregnant woman who is seropositive to IgM having converted in this pregnancy was estimated from data of Gras et al 2003 (see reference 6 in the main text). The results of the longevity of seropositivity to IgM was reported in 446 pregnant women who seroconverted for IgM. Two tests were used: an immunofluorescence test (IFT) and an immunosorbent agglutination assay (ISAGA). IgM antibodies were detected for longer using the ISAGA test [median 12.8 months, interquartile range (IQR) 6.9–24.9] than the IFT (median 10.4, IQR 7.1–14.4). We modelled the duration of IgM positivity by constructing two normal distributions that matched as closely as possible the interquartile ranges of the duration of antibody detection using these 2 tests. We assumed that pregnant women who are tested are uniformly distributed between 0 and 9 months pregnant. A random sample was taken from a uniform distribution with limits 0 and 9 months. A second random sample was taken from one of the two normal distributions that modelled the duration of IgM positivity. If the random variable from the uniform distribution of limits 0 and 9 months was the greater, the woman can be assumed to have been infected during pregnancy. Otherwise she was infected before pregnancy. This was repeated 10,000 times and the proportion of times the random variable drawn from the uniform distribution of 0 to 9 months exceeded that of the random variable drawn from the distribution describing the duration of IgM gives an estimate of the probability of seroconverting during pregnancy. This was repeated for the second test. Using the ISAGA test it indicated a probability of 0.155 and using the IFT it indicated a probability of 0.243 with a mean of the two tests of 0.199. Thus a uniform distribution with limits 0.155 and 0.243 and mean of 0.199 was used to model the probability of an IgM positive pregnant woman having seroconverted during the present pregnancy.

APPENDIX D: Summary of cohort studies with suitable data to estimate the CT incidence from data on seroconversion in pregnant women

Study	Number of CT cases	No of Pregnancies	Maternal transmission (%)
Antsaklis et al., 2002 ⁵	11	93	11.8
Bessieres et al., 2001 ¹	57	165	34.5
Dunn et al., 1999 ⁶	161	591	27.2
Jenum et al., 1998 ⁷	11	47	23.4
Lebech et al., 1999 ⁸	27	141	19.1
Robert-Gangneux et al., 1999 ⁹	27	110	24.5
Romand et al., 2001 ¹⁰	75	271	27.7
SYROCOT et al., 2007 ¹¹	507	1705	29.7
Wallon et al., 1999 ⁴	506	1721	29.4
Wallon et al., 2004 ¹²	358	1354	26.4
Total	1740	6198	28.1

APPENDIX E: Incidence and burden of CT by WHO region

The following 6 tables report the estimated incidence and burden of congenital toxoplasmosis for each country. The countries are arranged according to WHO regions and mortality strata. There are 6 WHO regions. The African region (AFR) encompassing most of Africa except some states in north Africa. The American region (AMR) encompassing all of North and South America. The Eastern Mediterranean Region encompassing much of the Middle East, some states in north Africa and some states in eastern Asia including Pakistan. The European Region which encompasses all of Europe, the New Independent States of the former Soviet Union, Turkey and Israel. The South East Asia Region (SEAR) includes states from the Indian Subcontinent and South East Asia. The Western Pacific region (WPR) includes states on the western Pacific rim as well as island states in the Pacific Ocean. Each region is further divided into mortality strata. Mortality stratum A has very low child mortality and low adult mortality. Stratum B has low child mortality and low adult mortality. Stratum c has low child mortality and high adult mortality. Stratum D has high child mortality and high adult mortality. Stratum E has high child mortality and very high adult mortality. Further details can be found in the World Health Report, 2003¹³. For each country the method of estimating the incidence of CT is noted. NN is neonatal screening (by IgM serology) and case reports of congenital toxoplasmosis in newborns. IgM PW is IgM phraseology in pregnant women. SC PW is seroconversion in pregnant women. ST is age stratified serology to estimate the incidence of seroconversion in pregnant women. NST is non age stratified serology to estimate exposure and incidence of seroconversion. Where no methodology is given it indicates that data was not available and estimates were made by extrapolating from neighboring or similar countries. Further notes with regard to particular studies are given as footnotes to the tables.

The quality of the data was assessed for each study on a scale from 1 the highest to 4 the lowest. The highest quality data consisted of large sample sizes, unbiased collection and/or effective national surveillance systems and uncertainty limits were based on sample sizes. Lower quality data could consist of small sample sizes or unrepresentative or old data. Small sample sizes inevitably lead to greater uncertainty limits. Data that was old or may have been unrepresentative of the countries population were given greater uncertainty in the stochastic estimates. Beta distributions for proportions (prevalences) were based on sample sizes where appropriate. Regression coefficients were calculated from logistic regression (age stratified prevalence) and standard errors of the coefficients were used to predict 95% CIs for seroconversion rates in pregnant women. Monte Carlo techniques were used by making repeated draws from this distribution and multiplying by draws from an appropriate beta distribution that modeled the proportion of sero converting pregnant women who had CT infants. Likewise for IgM based sero prevalence. If it was judged that data was biased or unrepresentative wider probability distributions were used for the point estimates than purely sample size would indicate.

Table E1: Incidence and burden of CT in African Region

WHO Region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYs			Sources of data	Data Quality	Methodology used
				Median	2.5 percentile	97.5 percentile	Median	2.5 percentile	97.5 percentile			
AFR D	Algeria	575000	1.9	1093	667	1560	10804	4453	20153			
	Angola	647000	1.6	1042	285	1760	6633	1586	14301			
	Benin	356715	3.4	1212	338	2200	7872	1862	16608	14	3	IgM PW
	Burkina Faso	639918	1.8	1137	865	1437	7205	3652	13076	15	3	ST
	Cameroon	638814	3.2	2061	1826	2287	13004	7150	20954	16	4	NST
	Cape Verde	11000	2.8	31	16	48	199	75	393			
	Chad	421000	1.1	449	196	639	2861	1129	5464			
	Comoros	25000	2.5	63	31	95	399	153	770			
	Equatorial Guinea	22835	2.5	57	38	76	357	169	650			
	Gabon	52000	1.7	90	72	112	568	301	962	17	4	IgM PW
	Gambia	61000	2.9	175	156	195	1112	593	1838	18	4	IgM PW
	Ghana	688339	1.4	998	753	1240	6259	3076	10662	19	4	IgM PW
	Guinea	371000	2.7	1002	683	1215	6342	2998	10803			
	Guinea-Bissau	55000	2.7	149	105	183	935	460	1594			
	Liberia	135000	2.8	383	185	581	2304	1138	3965			
	Madagascar	769193	0.5	362	194	551	2341	962	4491	20,21	4	ST
	Mali	613038	1.9	1140	816	1517	7307	3611	12910	22	4	NST
	Mauritania	105548	1.9	201	179	225	1275	691	2121			
	Niger	769579	1.3	1025	810	1254	6554	3345	10948	23	3	ST
	Nigeria	5444590	2.2	11707	9880	13646	73807	39006	122453	24-27	2	IgM PW & AS
Sao Tome and Principe	6864	3.1	21	19	23	134	73	219	28,29	1	ST	
Senegal	448477	2.2	994	702	1282	6263	2982	10971	30	4	NST	
Seychelles	1000	1.0	1		2	2	1	4				
Sierra Leone	198000	2.7	532	372	648	3383	1746	5726				
Togo	226566	2.5	563	464	662	3540	1906	5957	31	4	NST	
	Total AFR D	13282476	2.0	26488	24304	30071	171460	93256	294454			
AFR E	Botswana	52740	0.5	26	7	53	172	39	405	32	3	NST
	Burundi	384685	2.7	1039	914	1231	6843	3699	11139			
	Central African Republic	173530	3.0	519	460	580	3283	1767	5343	33	3	NST
	Congo	163029	1.8	289	158	493	1891	726	3915	34	3	ST
	Cote D'Ivoire	660383	3.2	2111	1914	2318	13341	7243	21961	35	3	NST
	Dem. Rep. Congo	2632925	2.7	7086	6299	7971	44882	24199	72716	36	3	NST
	Eritrea	192000	1.5	288	199	441	2870	1545	4756			
	Ethiopia	3052992	2.3	7160	6141	8460	45628	24572	75632	37,38	3	NST
	Kenya	1469000	3.2	4709	2554	7061	29939	11635	58310	39	4	NST
	Lesotho	53000	1.5	79	43	118	496	204	964			
	Malawi	615717	1.9	1153	1010	1318	7289	3953	12093	40	4	NST
	Mozambique	870242	1.1	936	409	1570	6065	2021	12495	41	3	ST
	Namibia	48445	1.7	82	67	98	521	275	880	42	2	ST
	Rwanda	405751	2.8	1146	957	1310	7247	3936	11914	43	3	NST
	South Africa	987000	1.5	1461	768	2172	9244	3799	17944	44	4	NST
	Swaziland	38360	2.6	100	45	134	602	220	1141	45	3	NST
	Tanzania	1412054	2.5	3537	2821	4306	22429	11551	37788	46	3	NST
	Uganda	1510322	2.9	4328	3424	5171	27198	14337	45345	47	4	NST
	Zambia	565226	1.0	548	304	836	3504	1363	6749	48	4	NST
	Zimbabwe	358717	1.1	377	178	617	2438	913	4851			
	Total AFR E	15646118	2.4	36974	33857	40991	235882	129614	378988			

Table E2: Incidence and burden of CT in the American Region

WHO region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYS			Source of data	Data Quality	Methodology
				Median	2.5 percentile	97.5 percentile	Median	2.5 percentile	97.5 percentile			
AMR A	Canada	342000	0.2	70	24	117	469	160	823	49*	4	NST
	Cuba	111266	0.9	99	55	144	657	362	1058	50-53	1	ST
	USA	4228675	0.7	2774	2207	3365	18538	13229	25335	54-55	1	ST
	Total AMR A	4681941	0.6	2942	2362	3535	19663	14134	26698			
AMR B	Argentina	733116	1.6	1143	542	1762	8008	3721	13036	56	4	NST
	Antigua and Barbuda	1000	2.0	2	1	3	14	7	21			
	Bahamas	5000	2.0	10	6	13	70	35	102			
	Barbados	4000	2.0	8	4	12	56	15	80			
	Belize	8000	1.9	15	9	22	101	42	135			
	Brazil	3675498	2.0	7396	5947	9228	51082	37497	65678	57-77	1	IgM PW & NNS
	Chile	243437	1.5	374	211	531	2579	1400	3842	78	4	NST
	Columbia	794675	2.5	2020	1153	3001	13893	7697	21109	79-83	1	IgM PW & NNS
	Costa Rica	73400	3.3	245	136	356	1651	868	2605	84	4	ST
	Dominica	1000	2.0	2	1	3	14	7	21			
	Dominican Republic	196000	2.0	389	201	667	2617	1312	4003			
	El Salvador	116000	1.9	220	147	421	1480	867	3194			
	Grenada	2000	3.1	6	6	7	41	31	52	85	2	ST
	Guyana	14000	2.0	28	15	45	193	123	343			
	Honduras	207000	1.9	401	197	556	2698	1563	4828			
	Jamaica	56000	3.3	183	111	259	1216	656	1790	86	4	NST
	Mexico	2204000	0.6	1227	716	1785	8184	4357	12762	87-90	3	ST
	Panama	68439	1.8	124	70	182	840	447	1302	91	4	ST
	Paraguay	118000	1.9	222	113	332	1519	769	2348			
	Saint Kitts and Nevis	1000	2.0	2	1	3	14	7	21			
Saint Lucia	2000	2.0	4	2	6	28	14	42				
Saint Vincent and the Gre	2000	2.0	4	2	6	28	14	42				
Suriname	11000	2.0	22	13	33	282	142	440				
Trinidad and Tobago	18000	1.4	25	9	46	169	59	325	92,93	1	IgM PW & NNS	
Uruguay	46000	3.8	175	93	255	1189	647	1853	94,95	4	NST	
Venezuela	552665	1.9	1061	597	1550	7380	4066	11097	96-98	2	IgM PW	
Total AMR B		9153230	1.8	15310	13056	17764	105346	82469	127544			
AMR C	Bolivia	254037	2.2	551	340	767	3785	2271	5582	99	4	ST
	Ecuador	305000	3.2	989	475	1345	6831	4311	9879			
	Guatemala	371000	1.9	705	432	1001	4743	2531	7998			
	Haiti	255000	2.0	511	324	866	3438	2001	5121			
	Nicaragua	116000	1.9	215	145	477	1446	809	2831			
	Peru	571000	3.7	2106	1128	3124	14750	7570	22964	100	3	IgM PW
Total AMR C		1872037	3.4	5077	4225	6792	34992	24367	41223			

* One small non-representative study suggests current seroprevalence. Older studies are available, but too old to indicate present day incidence.

Table E3: Incidence and burden of CT in the Eastern Mediterranean Region

WHO Region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYS			Source of data	Data Quality	Methodology
				Median	2.5 percentile	97.5 percentile	Median	2.5 percentile	97.5 percentile			
EMR B	Bahrain	17000	2.4	42	22	61	264	102	500	101	3	NST
	Iran	1,385,000	1.2	1729	1292	2206	11124	5495	19029	102-110	1	IgM PW & ST
	Jordan	167000	6.0	1003	721	1291	6374	3040	11059	111	3	AS
	Kuwait	55000	2.8	154	101	233	979	430	1673			
	Lebanon	62000	3.5	216	172	360	1377	698	2355	112	3	IgM PW & ST
	Libya	158000	2.5	402	225	581	2543	1046	4955	113	4	IgM PW & ST
	Oman	66000	3.3	224	64	288	1436	712	2424			
	Qatar	17000	1.8	30	20	41	194	91	341	114,115	1	IgM PW & ST
	Saudi Arabia	511000	4.9	2488	1911	3129	15857	7958	27407	116-121	2	IgM PW & ST
	Syria	546000	3.4	1856	992	2653	11797	4862	21713			
	Tunisia	183000	1.0	185	61	377	1180	305	2907	122	2	NN
UAE	74000	1.6	121	82	162	772	371	1378	123	2	ST*	
	Total EMR B	3241000	2.5	8451	6950	9527	53898	27750	84788			
EMR D	Afghanistan	1,117,000	1.6	1739	808	2904	11212	3760	23453			
	Djibouti	19000	1.7	32	18	50	213	87	400			
	Egypt	1,993,000	3.4	6795	6037	7508	42940	22944	69774	124,125	4	NST
	Iraq	868000	0.7	597	328	1059	4062	1572	8128	126,127	4	ST
	Morocco	619000	2.8	1744	995	2508	11062	4831	20692	128	4	ST
	Pakistan	4801000	1.9	9340	5352	13891	60746	25928	111156	129	4	NST
	Somalia	416770	2.8	1147	983	1306	7274	3903	11776	130	3	ST
	Sudan	1564000	0.7	1117	442	2099	7477	2212	16263	131	3	IgM PW
	Yemen	805000	3.9	3163	1730	4719	19974	8208	38217	132	4	NST
	Total EMR D	12203000	2.2	26269	21159	31183	164961	84561	276785			
Other Territories	Palestinian Territories	119000	2.1	255	196	303	1592	823	2664	133	4	ST*
	Western Sahara	15000	2.0	30	16	46	198	81	390			
	Total, other territories	134000	2.1	285	210	312	1790	939	2946			

*Maternal IgM titres and/or IgM titres in newborns are also reported but these appears to grossly over estimate the incidence compared to age stratified seroconversions of mothers

Table E4: Incidence and burden of CT in the European Region

WHO Region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYs			Source of data	Data Quality	Methodology
				Median	Lower 2.5 percentile	Upper 97.5 percentile	Median	Lower 2.5 percentile	Upper 97.5 percentile			
EUR A	Andorra	900	0.2	0	0	0	1	0	2			
	Austria	71000	0.3	22	9	35	138	55	276	134, 135	1	SC PW
	Belgium	106000	0.3	36	11	66	230	67	516	136	3	SC PW
	Croatia	43328	1.8	78	48	108	486	244	853	137, 138	2	ST
	Cyprus	12000	1.6	19	9	30	120	44	238			
	Czech Republic	91000	1.2	111	71	152	702	350	1209	139, 140	2	ST
	Denmark	59000	0.2	13	10	16	82	44	137	141	1	NN
	Finland	54000	0.1	5	1	10	29	9	64	142, 143	1	NN
	France	815000	0.3	270	227	320	1691	889	2764	144	1	NN
	Germany	823000	0.2	155	81	240	968	452	1793	145	3	NN*
	Greece	102000	1.6	165	86	250	1025	466	1854	146-150	2	ST
	Iceland	4000	1.3	5	2	8	32	12	64	151	4	NST
	Ireland	75000	0.6	46	22	73	290	133	539	152	2	NN
	Israel	142000	1.4	199	97	305	1224	532	2209	153	4	NN+
	Italy	577000	0.2	105	58	163	654	297	1217	154	2	IgM PW
	Liechtenstein	350	0.4	0	0	0	1	0	2			
	Luxembourg	6000	0.3	2	1	4	13	4	25			
	Malta	4000	0.5	2	1	4	13	5	25			
	Monaco	210	0.3	0	0	0	0	0	0			
	Norway	52000	0.6	30	13	54	186	73	376	155	1	NN
	Portugal	112000	0.3	37	16	63	230	103	522			
San Marino	300	0.3	0	0	0	1	0	1				
Slovenia	18000	1.9	34	26	43	215	110	363	156	1	IgM PW	
Spain	520000	0.2	85	56	117	531	266	917	157-159	1	IgM PW & ST	
Sweden	92000	0.1	8	2	17	50	14	106	151	1	NST	
Switzerland	73000	0.6	41	22	63	261	113	484	160, 161	1	NN Screen§	
The Netherlands	185000	2.1	392	207	554	2464	1184	4314	162	1	NN Screen	
United Kingdom	771000	0.4	313	142	529	1935	827	3676	163, 164	1	Reports and modelling#	
	Total EUR A	4797088	0.5	2174	1916	2896	13572	6236	20627			
EUR B	Albania	34000	3.9	131	10	320	800	104	2086	165	3	SC PW
	Armenia	37000	1.6	58	23	92	361	147	639			
	Azerbaijan	162000	1.6	256	109	419	1593	650	3142			
	Bosnia & Herzegovir	40000	1.7	66	31	107	411	187	620			
	Bulgaria	70000	1.6	111	50	191	698	276	1352	166	2	NST
	Georgia	49000	1.6	79	40	112	492	212	809			
	Kosovo	34000	0.9	31	6	68	197	51	434	167	3	SC PW
	Kyrgyzstan	129000	0.9	119	66	176	740	347	1329	168	1	ST
	Montenegro	8000	1.6	13	6	21	82	34	155	169	4	ST
	Poland	385000	1.6	611	319	953	3812	1696	7315	170-172	1	ST & NN
	Romania	213000	3.1	656	141	1251	4087	1169	8705	173	3	ST
	Serbia	68000	1.7	116	54	188	721	305	1366	174-176	2	ST
	Slovakia	58000	1.5	89	58	125	560	277	972	177	1	ST
	Tadjikistan	196000	0.9	182	102	263	1115	513	2010			
	Turkey	1436000	1.5	2108	1640	2898	13118	6752	22234	178-182	1	St & IgM PW
	Turkmenistan	96000	0.9	90	51	129	552	257	1011			
	Uzbekistan	492000	0.9	451	252	664	2814	1293	4988			
	Total EUR B	3507000	1.5	5167	4491	6090	32152	17490	54730			
EUR C	Belarus	93000	1.8	163	72	255	1012	424	1991	183	4	NST & IgM PW
	Estonia	13000	1.3	17	11	24	109	54	188	151	2	NST
	Hungary	99000	0.6	61	33	92	391	188	694	184	1	SC PW
	Kazakhstan	359000	0.9	332	187	479	2095	958	3858	185	2	ST
	Latvia	22000	1.3	29	19	39	184	87	330			
	Lithuania	22000	1.3	30	19	40	182	91	325			
	Macedonia	25000	1.6	41	22	65	254	109	475	186	4	NST
	Moldova	46000	2.4	112	50	201	697	302	1513			
	Russia	1552000	1.7	2649	2267	3038	16578	9051	27887	187-189	3	IgM PW & NST
	Ukraine	439000	1.7	765	346	1217	4900	1924	9407	190	4	NST
	Total EUR C	2670000	1.6	4200	3677	4797	26402	14392	42728			

Footnotes for incidence and burden of CT in the European Region

* Adjustments were made to estimate the incidence from the screening results based on the case definition as only severely infected infants were recorded

+Limited screening and estimates published in the report

§Estimates of 32 cases of CT or up to 130 women per year with acute toxoplasmosis in pregnancy given in reports

#Modelling paper with data from several reports suggests an annual incidence of 1.72 per 1000 of toxoplasmosis. This would represent 1.29 pregnancies per 1000 would be affected by toxoplasmosis and about 0.4 per 1000 births with CT following 28% transmission.

Table E5: Incidence and burden of CT in the South Eastern Asia Region

WHO Region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYS			Data sources	Data Quality	Methodology
				Median	2.5 percentile	97.5 percentile	Median	2.5 percentile	97.5 percentile			
SEAR B	Indonesia	3675498	1.6	5916	3825	8306	37089	16991	66129	191, 192	3	ST
	Sri Lanka	385000	0.8	309	239	378	1961	981	3330	193, 194	4	NST
	Thailand	877000	0.2	176	41	373	1087	207	2749	195, 196	3	IgM PW & NST
	Timour	29000	0.9	27	14	36	146	70	297			
	Total SEAR B	4966498	1.3	6429	4240	8559	40283	18721	71780			
SEAR D	Bangladesh	3800000	0.8	3137	1815	4392	19634	9059	35725			
	Bhutan	14000	1.6	22	11	33	137	56	266			
	DR Korea	357000	1.0	357	206	513	2235	1005	3869			
	India	25195000	0.8	20262	15598	25160	129576	67007	220763	197-199	1	NST
	Maldives	6000	0.8	5	4	6	31	16	53			
	Myanmar	1045000	0.5	530	294	786	0	1456	5989			
	Nepal	674000	1.5	1043	550	1548	6647	2651	12795	200, 201	3	NST
Total SEAR D	31091000	0.8	25355	20704	30693	158260	85952	275365				

Table E6: Incidence and Burden of CT in the Western Pacific Region

WHO Region	Country	Annual Numbers of births	CT cases per 1000 births	Estimated number of CT cases			Estimated number of DALYS			Source of data	Data Quality	Methodology
				Median	2.5 percentile	97.5 percentile	Median	2.5 percentile	97.5 percentile			
WPR A	Australia	264000	1.4	377	238	552	2282	1059	4043	202	4	NST*
	Brunei	7000	3.9	27	16	40	164	81	301			
	Japan	1,153,000	0.4	434	276	620	2713	1319	4919	203-205	2	NST*
	New Zealand	59000	1.2	72	64	82	448	253	722	206	3	ST+
	Singapore	40000	1.4	54	40	70	336	176	582	207	4	NST
	Total WPR A	1523000	0.6	964	717	1195	5948	2884	10129			
WPR B	American Samoa	2000	1.6	3	2	4	20	10	35			
	Cambodia	373000	0.6	234	150	309	1418	768	2650			
	China	15,660,000	1.1	17136	13552	20662	109801	59789	183005	208-234	1	IgM PW
	Fiji	21000	1.6	33	22	45	209	101	359	235	4	ST
	French Polynesia	5000	1.6	8	5	11	50	25	89			
	Kiribati	2000	1.5	3	2	4	20	10	35			
	Laos	170000	0.9	157	72	257	977	367	1817	236	4	NST
	Malaysia	608000	4.2	2578	1678	3604	16538	7948	30230	237	4	IgM PW
	Marshall Islands	2000	1.6	4	2	5	23	12	41	238	4	ST
	Micronesia	3000	1.6	5	3	6	29	15	51			
	Mongolia	63000	1.4	89	57	121	539	229	764			
	Nauru	250	1.6	0	0	0	2	1	3			
	New Caledonia	4000	2.5	10	6	13	63	31	109	239	3	NST
	Palau	100	1.6	0	0	0	0	0	1			
	Papua	164000	1.9	315	207	430	2008	1030	3425	240	4	NST
	Philippines	2538253	0.7	1760	1011	2523	11162	4903	20395	241	2	ST
	Samoa	5000	1.6	8	5	11	49	25	87			
	Solomon Islands	16000	1.6	25	17	34	160	78	282			
	South Korea	440000	0.3	124	36	276	766	181	1915	242-244	2	ST & IgM P
	Taiwan	206000	1.1	227	153	313	1440	706	2556	245,246	2	IgM PW
	Tonga	3000	1.6	5	3	6	29	14	54			
Tuvalu	120	1.6	0	0	0	1	1	2				
Vanuatu	5000	1.6	8	5	11	50	24	86				
Viet Nam	1,589,000	0.9	1466	972	1984	9352	4862	16708	247, 248	4	IgM PW*	
Total WPR B	21879723	1.1	24196	20538	28108	154705	81220	253069				

*Additional data was also included in the manuscripts speculating the likely incidence of CT.

+Manuscript estimated numbers of cases from age stratified prevalences in women.

APPENDIX F: Various scenarios of the mean YLDs, YLLs and DALYs per case of CT varying with the DW for chorioretinitis, the presence or absence of age weighting and the presence or absence of discounting at 3% and the inclusion or exclusion of fetal losses

		No Age Weighting, No discount			Age weighting, No discount			No Age weight, Discount			Age weighting, Discount			
	Region	DW for chorioretinitis	YLDs	YLLs	DALYs	YLDs	YLLs	DALYs	YLDs	YLLs	DALYs	YLDs	YLLs	DALYs
Fetal Losses Included	South America	0	1.63	2.97	4.6	1.69	3.07	4.76	0.59	1.07	1.66	0.64	1.14	1.78
		0.05	5.1	2.97	8.07	5.28	3.07	8.35	1.83	1.07	2.9	1.98	1.14	3.12
		0.1	8.56	2.97	11.53	8.87	3.07	11.94	3.08	1.07	4.15	3.33	1.14	4.46
		0.15	12.03	2.97	15	12.46	3.07	15.53	4.32	1.07	5.39	4.67	1.14	5.81
		0.2	15.49	2.97	18.46	16.05	3.07	19.12	5.56	1.07	6.63	6.01	1.14	7.15
	North America	0	1.63	2.97	4.6	1.69	3.07	4.76	0.59	1.07	1.66	0.64	1.14	1.78
		0.05	4.23	2.97	7.2	4.36	3.07	7.44	1.51	1.07	2.58	1.66	1.14	2.8
		0.1	6.83	2.97	9.8	7.04	3.07	10.11	2.42	1.07	3.49	2.68	1.14	3.82
		0.15	9.43	2.97	12.4	9.71	3.07	12.78	3.34	1.07	4.41	3.7	1.14	4.84
		0.2	12.03	2.97	15	12.38	3.07	15.46	4.26	1.07	5.33	4.72	1.14	5.86
	Rest of World	0	1.63	2.97	4.6	1.69	3.07	4.76	0.59	1.07	1.66	0.64	1.14	1.78
		0.05	2.88	2.97	5.85	2.93	3.07	6	1	1.07	2.07	1.16	1.14	2.3
		0.1	4.13	2.97	7.1	4.17	3.07	7.24	1.41	1.07	2.48	1.68	1.14	2.81
		0.15	5.38	2.97	8.35	5.41	3.07	8.48	1.81	1.07	2.88	2.19	1.14	3.33
		0.2	6.63	2.97	9.6	6.65	3.07	9.72	2.22	1.07	3.29	2.71	1.14	3.85
Fetal Losses Not Included	South America	0	1.63	0.6	2.23	1.69	0.62	2.31	0.59	0.22	0.81	0.64	0.22	0.86
		0.05	5.1	0.6	5.69	5.28	0.62	5.9	1.83	0.22	2.05	1.98	0.22	2.2
		0.1	8.56	0.6	9.16	8.87	0.62	9.49	3.08	0.22	3.3	3.33	0.22	3.55
		0.15	12.03	0.6	12.62	12.46	0.62	13.08	4.32	0.22	4.54	4.67	0.22	4.89
		0.2	15.49	0.6	16.09	16.05	0.62	16.67	5.56	0.22	5.78	6.01	0.22	6.23
	North America	0	1.63	0.6	2.23	1.69	0.62	2.31	0.59	0.22	0.81	0.64	0.22	0.86
		0.05	4.23	0.6	4.83	4.36	0.62	4.99	1.51	0.22	1.73	1.66	0.22	1.88
		0.1	6.83	0.6	7.43	7.04	0.62	7.66	2.42	0.22	2.64	2.68	0.22	2.9
		0.15	9.43	0.6	10.03	9.71	0.62	10.33	3.34	0.22	3.56	3.7	0.22	3.92
		0.2	12.03	0.6	12.63	12.38	0.62	13.01	4.26	0.22	4.48	4.72	0.22	4.95
	Rest of World	0	1.63	0.6	2.23	1.69	0.62	2.31	0.59	0.22	0.81	0.64	0.22	0.86
		0.05	2.88	0.6	3.48	2.93	0.62	3.55	1	0.22	1.22	1.16	0.22	1.38
		0.1	4.13	0.6	4.73	4.17	0.62	4.79	1.41	0.22	1.63	1.68	0.22	1.9
		0.15	5.38	0.6	5.98	5.41	0.62	6.03	1.81	0.22	2.03	2.19	0.22	2.41
		0.2	6.63	0.6	7.23	6.65	0.62	7.27	2.22	0.22	2.44	2.71	0.22	2.93

References

1. Bessieres MH, Berrebi A, Rolland M, et al. Neonatal screening for congenital toxoplasmosis in a cohort of 165 women infected during pregnancy and influence of in utero treatment on the results of neonatal tests. *European Journal of Obstetrics Gynecology and Reproductive Biology* 2001;94:37–45.
2. Gilbert RE, Thalib L, Tan HK, Paul M, Wallon M, Petersen E. Screening for congenital toxoplasmosis: accuracy of immunoglobulin M and immunoglobulin A tests after birth. *J Med Screen* 2007 ;14:8–13.
3. Rodrigues IMX, Castro AM, Gomes MBF, Amaral WN, Avelino MM. Congenital toxoplasmosis: evaluation of serological methods for the detection of anti-*Toxoplasma gondii* IgM and IgA antibodies. *Mem Inst Oswaldo Cruz* 2009 ;104:434–40.
4. Wallon M, Liou C, Garner P, Peyron F. Congenital toxoplasmosis: systematic review of evidence of efficacy of treatment in pregnancy. *BMJ* 1999; 318:1511–4.
5. Antsaklis A, Daskalakis G, Papantoniou N, Mentis A, Michalas S. Prenatal diagnosis of congenital toxoplasmosis. *Prenatal Diagnosis [Internet]* 2002;22:1107–11.
6. Dunn D, Wallon M, Peyron F, Petersen E, Peckham C, Gilbert R. Mother-to-child transmission of toxoplasmosis: risk estimates for clinical counselling. *The Lancet* 1999;353:1829–33.
7. Jenum PA, Stray-Pedersen B, Melby KK, et al. Incidence of *Toxoplasma gondii* infection in 35,940 pregnant women in Norway and pregnancy outcome for infected women. *J Clin Microbiol* 1998 ;36:2900–6.
8. Lebech M, Andersen O, Christensen NC, et al. Feasibility of neonatal screening for *Toxoplasma* infection in the absence of prenatal treatment. Danish Congenital Toxoplasmosis Study Group. *Lancet* 1999 ;353:1834–7.
9. Robert-Gangneux F, Gavinet MF, Ancelle T, Raymond J, Tourte-Schaefer C, Dupouy-Camet J. Value of prenatal diagnosis and early postnatal diagnosis of congenital toxoplasmosis: retrospective study of 110 cases. *J Clin Microbiol* 1999;37:2893–8.
10. Romand S, Wallon M, Franck J, Thulliez P, Peyron F, Dumon H. Prenatal diagnosis using polymerase chain reaction on amniotic fluid for congenital toxoplasmosis. *Obstetrics & Gynecology* 2001 ;97:296–300.
11. Thiébaud R, Leproust S, Chêne G, Gilbert R. Effectiveness of prenatal treatment for congenital toxoplasmosis: a meta-analysis of individual patients' data. *Lancet* 2007 ;369:115–22.
12. Wallon M, Kodjikian L, Biquet C, et al. Long-term ocular prognosis in 327 children with congenital toxoplasmosis. *Pediatrics* 2004;113:1567–72.
13. World Health Organisation. List of member States by WHO region and mortality stratum. In: *The World Health Report 2003, Shaping the Future*.

WHO, Geneva, pp 182-183. Available from: <http://www.who.int/whr/2003/en/index.html>

14. Rodier MH, Berthonneau J, Bourgoïn A, Giraudeau G, Agius G, Buruoca C, et al. Seroprevalences of *Toxoplasma*, malaria, rubella, cytomegalovirus, HIV and treponemal infections among pregnant women in Cotonou, Republic of Benin. *Acta Trop* 1995 ;59:271–7. Available
15. Simpore J, Savadogo A, Ilboudo D, Nadambega MC, Esposito M, Yara J, et al. *Toxoplasma gondii*, HCV, and HBV seroprevalence and co-infection among HIV-positive and -negative pregnant women in Burkina Faso. *J. Med. Virol.* 2006 ;78: 730–3.
16. Ndumbe PM, Andela A, Nkemnkeng-Asong J, Watonsi E, Nyambi P. Prevalence of infections affecting the child among pregnant women in Yaounde, Cameroon. *Med. Microbiol. Immunol.* 1992;181:127–30.
17. Mpiga Mickoto R, Akue J-P, Bisvigou U, Mayi Tsonga S, Nkoghe D. [Serological study on toxoplasmosis among pregnant women from Franceville, Gabon]. *Bull Soc Pathol Exot* 2010;103:41–3.
18. Greenwood AM, Greenwood BM, Bradley AK, Williams K, Shenton FC, Tulloch S, et al. A prospective survey of the outcome of pregnancy in a rural area of the Gambia. *Bull WHO* 1987;65:635–43.
19. Ayi I, Edu SA, Apea-Kubi KA, Boamah D, Bosompem KM, Etoh D. Sero-epidemiology of toxoplasmosis amongst pregnant women in the greater Accra region of Ghana. *Ghana Med J* 2009;43:107–14.
20. Lelong B, Rahelimino B, Candolfi E, Ravelojaona BJ, Villard O, Rasamindrakotroka AJ, et al. [Prevalence of toxoplasmosis in a population of pregnant women in Antananarivo (Madagascar)]. *Bull Soc Pathol Exot* 1995;88:46–9.
21. Dromigny JA, Pecarrere JL, Leroy F, Ollivier G, Boisier P. [Prevalence of toxoplasmosis in Tananarive. Study conducted at the Pasteur Institute of Madagascar (PIM) on a sample of 2354 subjects]. *Bull Soc Pathol Exot* 1996; 89:212–6.
22. Maïga I, Kiemtoré P, Tounkara A. [Prevalence of antitoxoplasma antibodies in patients with acquired immunodeficiency syndrome and blood donors in Bamako]. *Bull Soc Pathol Exot* 2001;94:268–70.
23. Julvez J, Magnaval JF, Meynard D, Perie C, Baixench MT. [Seroepidemiology of toxoplasmosis in Niamey, Niger]. *Med Trop (Mars)* 1996;56(1):48–50.
24. Ishaku BS, Ajogi I, Umoh JU, Lawal I, Randawa AJR. Seroprevalence and risk factors for *Toxoplasma gondii* among antenatal women in Zaria, Nigeria. *Research Journal of Medicine and Medical Sciences.* 2009;4:483–8.
25. Kamani J, Mani AU, Egwu GO, Kumshe HA. Seroprevalence of human infection with *Toxoplasma gondii* and the associated risk factors, in Maiduguri, Borno State, Nigeria. *Ann Trop Med Parasitol* 2009;103:317–21.
26. Akinbami AA, Adewunmi AA, Rabiou KA, Wright KO, Dosunmu AO, Dada MO, et al. Seroprevalence of *Toxoplasma gondii* antibodies amongst pregnant women at the Lagos State University Teaching Hospital, Nigeria. *Niger Postgrad Med J.* 2010;17:164–7.

27. Uneke CJ, Duhlińska DD, Ngwu BAF, Njoku MO. Seroprevalence of *Toxoplasma gondii* infection in Kwal, a rural district of Plateau-Nigeria. *Afr J Med Med Sci* 2007;36:109–13.
28. Hung C-C, Fan C-K, Su K-E, Sung F-C, Chiou H-Y, Gil V, et al. Serological screening and toxoplasmosis exposure factors among pregnant women in the Democratic Republic of Sao Tome and Principe. *Trans. R. Soc. Trop. Med. Hyg.* 2007;101:134–9.
29. Fan C-K, Hung C-C, Su K-E, Chiou H-Y, Gil V, Ferreira M da C dos R, et al. Seroprevalence of *Toxoplasma gondii* infection among inhabitants in the Democratic Republic of Sao Tome and Principe. *Trans. R. Soc. Trop. Med. Hyg.* 2007;101:1157–8.
30. Ndiaye D, Ndiaye A, Sène PD, Ndiaye JL, Faye B, Ndir O. [Evaluation of serological tests of toxoplasmosis in pregnant women realized at the Laboratory of Parasitology and Mycology of Le Dantec Teaching Hospital in 2002]. *Dakar Med.* 2007;52:58–61.
31. Deniau M, Tourte-Schaefer C, Agbo K, Dupouy-Camet J, Heyer C, Lapiere J. [Evaluation of the risk of congenital toxoplasmosis in Togo]. *Bull Soc Pathol Exot* 1991;84:664–72.
32. Wester CW, Bussmann H, Moyo S, Avalos A, Gaolathe T, Ndwapi N, et al. Serological evidence of HIV-associated infection among HIV-1-infected adults in Botswana. *Clin. Infect. Dis.* 2006;43:1612–5.
33. Morvan JM, Mambely R, Selekon B, Coumanzi-Malo MF. [Toxoplasmosis at the Pasteur Institute of Bangui, Central African Republic (1996-1998): serological data]. *Bull Soc Pathol Exot* 1999;92:157–60.
34. Candolfi E, Berg M, Kien T. [Prevalence of toxoplasmosis in Pointe-Noire in Congo. Study of the sampling of 310 subjects]. *Bull Soc Pathol Exot* [Internet]. 1993 [cited 2012 Mar 15];86(5):358–62. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8124105>
35. Adou-Bryn KD, Ouhon J, Nemer J, Yapo CG, Assoumou A. [Serological survey of acquired toxoplasmosis in women of child-bearing age in Yopougon (Abidjan, Côte d'Ivoire)]. *Bull Soc Pathol Exot* 2004;97:345–8.
36. Dumas N, Cazaux M, Tshikom K, Mwinba K, Nsinba, Salaun JJ, et al. [Epidemiological study of toxoplasmosis at Kinshasa and in lower Zaire]. *Ann Soc Belg Med Trop.* 1990;70:289–96.
37. Shimelis T, Tebeje M, Tadesse E, Tegbaru B, Terefe A. Sero-prevalence of latent *Toxoplasma gondii* infection among HIV-infected and HIV-uninfected people in Addis Ababa, Ethiopia: A comparative cross-sectional study. *BMC Res Notes* 2009;2:213.
38. Woldemichael T, Fontanet AL, Sahlu T, Gilis H, Messele T, Rinke de Wit TF, et al. Evaluation of the Eiken latex agglutination test for anti-*Toxoplasma* antibodies and seroprevalence of *Toxoplasma* infection among factory workers in Addis Ababa, Ethiopia. *Trans. R. Soc. Trop. Med. Hyg* 1998;92:401–3.
39. Brindle R, Holliman R, Gilks C, Waiyaki P. *Toxoplasma* antibodies in HIV-positive patients from Nairobi. *Trans. R. Soc. Trop. Med. Hyg.* 1991;85:750–1.

40. van Oosterhout JJG, Laufer MK, Graham SM, Thumba F, Perez MA, Chimbiya N, et al. A community-based study of the incidence of trimethoprim-sulfamethoxazole-preventable infections in Malawian adults living with HIV. *J. Acquir. Immune Defic. Syndr.* 2005;39:626–31.
41. Siteo SPBL, Rafael B, Meireles LR, Andrade HF de Jr, Thompson R. Preliminary report of HIV and *Toxoplasma gondii* occurrence in pregnant women from Mozambique. *Rev. Inst. Med. Trop. Sao Paulo* 2010;52:291–5.
42. Huhle-Schmidbauer A, Bommer W. Toxoplasmose in Namibia-studie über die Prävalenz von Antikoöpern bei zwei Frauenkollektiven aus Windhoek und Rundu/Kkavango. *Mill. Öslerr. Ges. Tropenmed. Parasitol.* 1995;17:23–8.
43. Gascon J, Torres-Rodriguez JM, Soldevila M, Merlos AM. [Seroepidemiology of toxoplasmosis in 2 communities of Rwanda (Central Africa)]. *Rev. Inst. Med. Trop. Sao Paulo* 1989;31:399–402.
44. Kistiah K. Studies on the epidemiology of Toxoplasmosis in South Africa [MSc]. [Johannesburg]: University of the Witwatersrand; 2009.
45. Liao CW, Lee YL, Sukati H, D’lamini P, Huang YC, Chiu CJ, et al. Seroprevalence of *Toxoplasma gondii* infection among children in Swaziland, southern Africa. *Ann Trop Med Parasitol* 2009;103:731–6.
46. Swai ES, Schoonman L. Seroprevalence of *Toxoplasma gondii* infection amongst residents of Tanga district in north-east Tanzania. *Tanzan J Health Res* 2009;11:205–9.
47. Lindström I, Kaddu-Mulindwa DH, Kironde F, Lindh J. Prevalence of latent and reactivated *Toxoplasma gondii* parasites in HIV-patients from Uganda. *Acta Trop* 2006;100:218–22.
48. Zumla A, Savva D, Wheeler RB, Hira SK, Luo NP, Kaleebu P, et al. Toxoplasma serology in Zambian and Ugandan patients infected with the human immunodeficiency virus. *Trans. R. Soc. Trop. Med. Hyg* 1991;85:227–9.
49. Shuhaiber, S., Koren, G., Boskovic, R., Einarson, T. R., Soldin, O. P., Einarson, A. Seroprevalence of *Toxoplasma gondii* infection among veterinary staff in Ontario, Canada (2002): Implications for teratogenic risk. *BMC Infectious Diseases* 2003; 3:8
50. Sánchez-Gutiérrez A, Martín-Hernández I, García-Izquierdo SM. Estudio de reactividad a *Toxoplasma gondii* en embarazadas de las provincias Ciudad de la Habana y Pinar del Río, Cuba. *Bioquimia.* 2003;28:3–8.
51. Suárez-Hernández M, González-Fernández A, Gardón-Quirola BY, Martínez- Sánchez R. Infección y enfermedad por *Toxoplasma gondii* en animales y humanos en 23 años de observación en la provincia de Ciego de Ávila, Cuba. *Rev Biomed.* 2005;16:21–7.
52. Martin-Hernandez I, Garcia-Izquierdo SM. Prevalencia de anticuerpos IgG contra *Toxoplasma gondii* en donantes de sangre Cubanos. *Rev Biomed.* 2003;14:247–51.
53. Sanchez RM, Gordo RB, Amador EA, Berrio LA. Prevalencia de infeccion toxoplasmica en gestanted de la provincia la Habana. *Rev Inst Med Trop Sao Paulo.* 1994;36:445–50.

54. Jones JL, Kruszon-Moran D, Sanders-Lewis K, Wilson M. *Toxoplasma gondii* Infection in the United States, 1999–2004, Decline from the Prior Decade. *American Journal of Tropical Medicine & Hygiene*. 2007;77:405–10.
55. Jones JL, Kruszon-Moran D, Wilson M, McQuillan G, Navin T, McAuley JB. *Toxoplasma gondii* Infection in the United States: Seroprevalence and Risk Factors. *American Journal of Epidemiology*. 2001;154:357–65.
56. Ianiro JL, Moscardi F. Prevalencia de anticuerpos anti *Toxoplasma gondii* en embarazadas concurrentes al Hospital Privado de Comunidad de Mar del Plata. Servicio de Laboratorio. Hospital Privado de Comunidad. Córdoba 4545 (7600) Mar del Plata. Argentina. 1998. Available at ;<http://www.hpc.org.ar/pdf/pdf/embarazadas.pdf>
57. Feiieira MU, Hiramoto RM, Aureliano DP, da Silva-Nunes M, da Silva NS, Malafronte RS, et al. A Community-based Survey of Human Toxoplasmosis in Rural Amazonia: Seroprevalence, Seroconversion Rate, and Associated Risk Factors. *American Journal of Tropical Medicine and Hygiene*. 2009;81(1):171–6.
58. Segundo GRS, Silva DAO, Mineo JR, Ferreira MS. A Comparative Study of Congenital Toxoplasmosis between Public and Private Hospitals from Uberlândia, MG, Brazil. *Mem Inst Oswaldo Cruz*. 2004;99:13–7.
59. Ribeiro AC, Mutis MS, Fernandes O. Association of the presence of residual anti-*Toxoplasma gondii* IgM in pregnant women and their respective family groups in Miracema, Northwest Rio de Janeiro, Brazil. *Mem Inst Oswaldo Cruz, Rio de Janeiro*. 2008;103(6):591–4.
60. Vasconcelos-Santos DV, Azevedo DOM, Campos WR, Oréfice F, Queiroz-Andrade GM, Machado Carellos EV, et al. Congenital Toxoplasmosis in Southeastern Brazil: Results of Early Ophthalmologic Examination of a Large Cohort of Neonates. *Ophthalmology*. 2009;116(11):2199–205.
61. Lago EG, Neto EC, Melamed J, Rucks AP, Presotto C, Coelho JC, et al. Congenital toxoplasmosis: late pregnancy infections detected by neonatal screening and maternal serological testing at delivery. *Paediatric and Perinatal Epidemiology*. 2007;21:525–31.
62. Neto EC, Amorim F, Lago EG. Estimation of the regional distribution of congenital toxoplasmosis in Brazil from the results of neonatal screening. *Scientia Medica (Porto Alegre)*. 2010;20(1):64–70.
63. Mioranza SL, Meireles LR, Mioranza EL, Junior HFA. Evidência sorológica da infecção aguda pelo *Toxoplasma gondii* em gestantes de Cascavel, Paraná. *Revista da Sociedade Brasileira de Medicina Tropical*. 2008;41(6):628–34.
64. Lopes F, Mitsuka-Breganó R, Gonçalves DD, Freire RL, Karigyo CJT, Wedy GF, et al. Factors associated with seropositivity for anti-*Toxoplasma gondii* antibodies in pregnant women of Londrina, Paraná, Brazil. *Mem Inst Oswaldo Cruz, Rio de Janeiro*,. 2009;104:378–82.
65. Bahia-Oliveira LMG, Jones JL, Azevedo-Silva J, Alves CCF, Oréfice F, Addiss DG. Highly Endemic, Waterborne Toxoplasmosis in North Rio de Janeiro State, Brazil. *Emerging Infectious Diseases*. 2003;9:55–62.
66. Neto EC, Anele E, Rubim R, Brites A, Schulte J, Becker D, et al. High prevalence of congenital toxoplasmosis in Brazil estimated in a 3-year

- prospective neonatal screening study. *International Journal of Epidemiology*. 2000;29:941–7.
67. Avelino MM, Campos Jr D, Barbosa de Parada J, Maria de Castro A. Pregnancy as a risk factor for acute toxoplasmosis seroconversion. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2003;108:19–24.
 68. Coelho RAL, Kobayashi M, Carvalho LB. Prevalence of IgG antibodies specific to *Toxoplasma gondii* among blood donors in Recife, northeast Brazil. *Rev. Inst. Med. trop. S. Paulo*. 2003;45:229–31.
 69. Avelino MM, Junior DC, de Parada JB, de Castro AM. Risk Factors for *Toxoplasma gondii* Infection in Women of Childbearing Age. *The Brazilian Journal of Infectious Diseases*. 2004; 8:164–74.
 70. Lago EG, de Carvalho RL, Jungblut R, da Silva VB, Fiori RM. Screening for *Toxoplasma gondii* antibodies in 2,513 consecutive parturient women and evaluation of newborn infants at risk for congenital toxoplasmosis. *Scientia Medica, Porto Alegre*. 2009;19:27–34.
 71. Fernandes GCVR, Azevedo RS, Amaku M, Yu ALF, Massad E. Seroepidemiology of *Toxoplasma* infection in a metropolitan region of Brazil. *Epidemiology and Infection*. 2009;137:1809–15.
 72. Vaz RS, Thomaz-Soccol V, Sumikawa E, Guimarães ATB. Serological prevalence of *Toxoplasma gondii* antibodies in pregnant women from Southern Brazil. *Parasitology Research*. 2010;106:661–5.
 73. Spalding SM, Amendoeira MRR, Klein CH, Ribeiro LC. Serological screening and toxoplasmosis exposure factors among pregnant women in South of Brazil. *Revista da Sociedade Brasileira de Medicina Tropical*. 2005;38:173–7.
 74. Reis MM, Tessaro MM, d' Azevedo PA. Serologic profile of toxoplasmosis in pregnant women from a public hospital in Porto Alegre. *Rev Bras Ginecol Obstet*. 2006;28:158–64.
 75. de Melo Inagaki AD, de Oliveira LAR, de Oliveira MFB, Santos RCS, Araújo RM, Alves JAB, et al. Seroprevalence of antibodies for toxoplasmosis, rubella, cytomegalovirus, syphilis and HIV among pregnant women in Sergipe. *Revista da Sociedade Brasileira de Medicina Tropical*. 2009;42:532–6.
 76. Varella IS, Wagner MB, Darela AC, Nunes LM, Mülle RW. Seroprevalence of toxoplasmosis in pregnant women. *Jornal de Pediatria*. 2003;79:69–74.
 77. Leao PRD, Filho JM, de Medeiros SF. Toxoplasmose: Soroprevalência em Puérperas Atendidas pelo Sistema Único de Saúde. *RBGO*. 2004;26:627–32.
 78. Muñoz-Zanzi CA, Fry P, Lesina B, Hill D. *Toxoplasma gondii* Oocyst– specific Antibodies and Source of Infection. *Emerging Infectious Diseases*. 2010;16:1591–3.
 79. Gomez-Marin JE, Gonzalez MM, Montoya MT, Giraldo, A, Castano JC. A newborn screening programme for congenital toxoplasmosis in the

- setting of a country with less income. Arch Dis Child. 2007;92:88.
80. Gomez-Marin JE, de-la-Torre A, Angel-Muller E, et al. First Colombian Multicentric Newborn Screening for Congenital Toxoplasmosis. PLoS Neglected Tropical Diseases. 2011;5:e1195.
 81. Rosso F, Les JT, Agudelo A, Villalobos C, Chaves JA, Tunubala GA, et al. Prevalence of Infection with *Toxoplasma gondii* among Pregnant Women in Cali, Colombia, South America. American Journal of Tropical Medicine and Hygiene. 2008;78:504–8.
 82. Torres JJ. Prevalencia de infección por *Toxoplasma gondii* en Mujeres Embarazadas, en Valledupar, cesar año 2007 [master of public health]. [Santamarta]: Universidad del Magdalena en Convenio con la Universidad Nacional de Colombia; 2007.
 83. Barrera AM, Castiblanco P, Gómez JE, López MMC, Ruiz A, Moncada L, et al. Toxoplasmosis Adquirida Durante el Embarazo, en el Instituto Materno Infantil en Bogotá. Rev. Salud Pública. 2003;4:286–93.
 84. Zapata M, Reyes L, Holst I. Disminución en la prevalencia de anticuerpos contra *Toxoplasma gondii* en adultos del valle central de Costa Rica. Parasitol Latinoam. 2005;60:32–7.
 85. Asthana SP, MacPherson CNL, Weiss SH, Stephans R, Denny TN, Sharma RN, et al. Seroprevalence of *Toxoplasma gondii* in Pregnant Women and Cats in Grenada, West Indies. Journal of Parasitology. 2006;92:644–5.
 86. Prabhakar P, Baily A, Smikle MF, McCaw-Binss A, Ashley D. Seroprevalence of *Toxoplasma gondii* virus, Cytomegalovirus, Herpes simplex virus (TORCH) and Syphilis in Jamaican pregnant women. West Indian Medical Journal. 1991;40:166–9.
 87. Alvarado-Esquivel C, Torres-Castorena A, Liesenfeld O, et al. Seroepidemiology of *Toxoplasma gondii* infection in pregnant women in rural Durango, Mexico. Journal of Parasitology. 2009;95:271–4.
 88. Velasco-Castrejón O, Salvatierra-Izab B, Valdespino JL, et al. Seroepidemiology de la toxoplasmosis en Mexico. Salud Publica de Mexico. 1992;34:222–9.
 89. Alvarado-Esquivel C, Mercado-Suarez MF, Rodríguez-Briones A, et al. Seroepidemiology of infection with *Toxoplasma gondii* in healthy blood donors of Durango, Mexico. BMC Infectious Diseases. 2007;7:75.
 90. Alvarado-Esquivel C, Sifuentes-Álvarez A, Narro-Duarte SG, et al. Seroepidemiology of *Toxoplasma gondii* infection in pregnant women in a public hospital in northern Mexico. BMC Infectious Diseases. 2006;6:113.
 91. Sousa OE, Saenz RE, Frenkel JK. Toxoplasmosis in Panama: a ten year study. American Journal of Tropical Medicine and Hygiene. 1988;38:315–22.
 92. Adesiyun AA, Gooding R, Ganta K, Seepersadsingh N, Ramsewak S. Congenital Toxoplasmosis in two Health Institutions in Trinidad. West Indian Medical Journal. 2007;56:166–70.

93. Ramsewak S, Gooding R, Ganta K, Seepersadsingh N, Adesiyun AA. Seroprevalence and risk factors of *Toxoplasma gondii* infection among pregnant women in Trinidad and Tobago. *Pan American Journal of Public Health*. 2008;23:164–70.
94. Acuna A. Enfermedades Parasitarias en el Uruguay. Las enfermedades Transmisibles en el Uruguay. Montevideo: WHO; 2001. p. 24–37.
95. Freyre A, Falcon J, Correa O, Mendez J, Venzal J. Significación de la Toxoplasmosis. Fuentes de infección. Estimación de la incidencia de la toxoplasmosis humana congénita. Aborto ovino toxoplásmico. Significación económica del aborto ovino toxoplásmico en Uruguay. Areas de investigación actuales y futuras. *Enfermedades Parasitarias en Uruguay, sus fundamentos y consecuencias sociales y económicas*. Montevideo: WHO; 1999. p. 63–6.
96. Mendez DM, Leal EM, Perdigon LO, Yamarte PN. Seroprevalencia de la toxoplasmosis en mujeres que asistieron al Hospital “Dr. Rafael Gallardo”. Coro, Estado Falcón. *Revista de la Sociedad Venezolana de Microbiología*. 2009;29:49–51.
97. Diaz-Suarez O, Estevez J. Seroepidemiology of toxoplasmosis in woman of childbearing age from a marginal community of Maracaibo, Venezuela. *Rev. Inst. Med. trop. S. Paulo*. 2009;51:13–7.
98. Alarcon de Noya B, Romero J, Sanchez E, Lugo J, et al. Screening of toxoplasmosis and Chagas disease in the Prenatal Consultation of the “Hospital Universitario de Caracas. *Journal of Obstetrics and Gynecology of Venezuela*. 2010; 70:75–81.
99. Paradisi F, Bartoloni A, Aquilini D, Roselli M. Estudio serologico sobre toxoplasmosis en el Departamento de Santa Cruz, Bolivia. *Transactions of the Royal Society of Tropical Medicine & Hygiene*. 1989;83:213–4.
100. Carmen RB, Luz VG. Socioeconomic-epidemiologic factors and their relationship with the seroprevalence of toxoplasmosis in assisted pregnant women in “Felipe Arriola Iglesias” and “Cesar Gararay Garcia” hospital, Iquitos, Peru, 2009. *Neotropical Helminthology*. 2011;5:31–40.
101. Tabbara KS, Fadhel S. Serodiagnosis of toxoplasmosis in Bahrain. *Saudi Medical Journal*. 2005;26:1383–7.
102. Salahi-Moghaddam A, Hafizi A. A Serological Study on *Toxoplasma gondii* Infection Among People in South of Tehran, Iran. *Koran Journal of Parasitology*. 2009;47:61–3.
103. Fouladvand M, Barazesh A, Zandi K, Naeimi B, Tajbakhsh S. Seroepidemiological study of toxoplasmosis in childbearing age women in Bushehr City, south west of Iran in 2009. *African Journal of Biotechnology*. 2010;9:5809–12.
104. Nasser SM, Behrooz A, Zari N, Majid Y, Anahita B. Seroepidemiology of *Toxoplasma gondii* infection in Isfahan province, central Iran: A population based study. *Journal of Research in Medical Sciences*. 2011;16:496–501.
105. Sharifi-Mood B, Hashemi-Shahri M, Salehi M, Naderi M, Naser-Poor T. Seroepidemiology of *Toxoplasma* infection in the pregnant women in Zahedan, Southeast of Iran. *Journal of Research in Health Science*. 2006;6(1):1–3.
106. Fallah M, Rabiee S, Matini M, Taherkhani H. Seroepidemiology of toxoplasmosis in primigravida women in Hamadan, Islamic Republic of Iran,

2004. Eastern Mediterranean Health Journal. 2008;14(1):163–17.
107. Youssefi MR, Sefidgar AA, Mostafazadeh A, Omran SM. Serologic evaluation of Toxoplasmosis in matrimonial women in Babol, Iran. Pakistan Journal of Biological Sciences. 2007;10:1550–2.
 108. Nejad MR, Cheraghipour K, Mojard EN, Moradpour K, Razaghi M, Dabiri H. Seroprevalence and risk factors for *Toxoplasma* infection in a large cohort of pregnant women in Rural and Urban areas. Health MED. 2011;5:338–42.
 109. Hashemi HJ, Saraei M. Seroprevalence of *Toxoplasma gondii* in unmarried women in Qazvin, Islamic Republic of Iran. Eastern Mediterranean Health Journal. 2010;16:24–8.
 110. Abdi J, Shojaee S, Mirzaee A, Heshavarz H. Seroprevalence of Toxoplasmosis in pregnant women in Ilam province, Iran. Iranian Journal of Parasitology. 2008;3:34–7.
 111. Jumaian NF. Seroprevalence and risk factors for *Toxoplasma* infection in pregnant women in Jordan. Eastern Mediterranean Health Journal. 2005;11:45–51.
 112. Bouhamdan SF, Bitar LK, Saghir HJ, Bayan A, Araj GF. Seroprevalence of toxoplasma antibodies among individuals tested at hospitals and private laboratories in Beirut. Lebanese Medical Journal. 2010;58:8–11.
 113. Mousa DA, Mohammad MA, Toboli AB. *Toxoplasma gondii* infection in pregnant women with previous adverse pregnancy outcome. Medical Journal of Islamic World Academy of Sciences. 2011;19:95–102.
 114. Abu-Madi MA, Behnke JM, Dabritz HA. *Toxoplasma gondii* Seropositivity and Co-Infection with TORCH Pathogens in High-Risk Patients from Qatar. American Journal of Tropical Medicine & Hygiene. 2010;82:626–33.
 115. Abu-Madi MA, Al-Molawi N, Behnke JM. Seroprevalence and epidemiological correlates of *Toxoplasma gondii* infections among patients referred for hospital-based serological testing in Doha, Qatar. Parasites & Vectors. 2008;1:39.
 116. Tabbara KS, Al-Omar O, Tawfik A, Al-Shammary F. Toxoplasmosis in Saudi Arabia. Saudi Medical Journal. 1999;20(1):46–9.
 117. Al-Mohammad HI, Amin TT, Balaha MH, Al-Moghannum MS. Toxoplasmosis among the pregnant women attending a Saudi maternity hospital: seroprevalence and possible risk factors. Annals of Tropical Medicine & Parasitology. 2010;104:493–504.
 118. Ghazi HO, Telmesani AM, Mahomed MF. TORCH Agents in pregnant Saudi women. Medical Principles and Practice. 2002;11:180–2.
 119. Al-Harhi SA, Jamjoom MB, Ghazi HO. Seroprevalence of *Toxoplasma gondii* among pregnant women in Makkah, Saudi Arabia. Umm Al-Qura University Journal of Science English. 2006;18:217–27.
 120. Al-Qurashi AR. Seroepidemiological study of toxoplasmosis in rural areas in the eastern region of Saudi Arabia. Journal of the Egyptian Society

of Parasitology. 2004;34:23–34.

121. Al-Qurashi AR, Ghandour AM, Obied OE, Al-Mulhim AA, Makki SM. Seroepidemiological study of *Toxoplasma gondii* infection in the human population in the Eastern Region. Saudi Medical Journal. 2001;22:13–8.
122. Ben Hamida Nouaïli E, Chaouachi S, Meftah N, Bardi R, Sfar R, Marrakchi Z. Dépistage neonatal de la toxoplasmose congenitale. Etude prospective. La Tunisie Medicale. 2009; 87: 196-199.
123. Dar FK, Alkarmi T, Uduman S, Abdulrazzaq Y, Grundsell H, Hughes P. Gestational and neonatal toxoplasmosis: Regional seroprevalence in the United Arab Emirates. European Journal of Epidemiology. 1997;13:567–71.
124. Ibrahim H, Huang P, Salem TA, Tallat RM, Nasr MI, Xuan X, et al. Prevalence of Neospora caninum and *Toxoplasma gondii* antibodies in Northern Egypt. American Journal of Tropical Medicine & Hygiene. 2009;80:263–7.
125. Elsheikha HM, Azab MS, Abousamra NK, Rahbar MH, Elghannam DM, Raafat D. Seroprevalence of and risk factors for *Toxoplasma gondii* antibodies among asymptomatic blood donors in Egypt. Parasitology Research. 2009;104:1471–6.
126. Al-Kalaby RF. Sero-epidemiological Study of Toxoplasmosis Among Different Groups of Population in Najaf City [MSc]. Kufa; 2002.
127. Yacoub AAH, Bakr S, Hamed AM, Al-Thamery AAA, Fartoci MJ. Seroepidemiology of selected zoonotic infections in Basra region of Iraq. Eastern Mediterranean Health Journal. 12:112–8.
128. Laboudi M, El Mansouri B, Sebti F, Amarir F, Coppieters Y, Rhajaoui M. Facteurs de risque d'une sérologie toxoplasmique positive chez la femme enceinte au Maroc. Parasite. 2009;16:71–2.
129. Tasawar Z, Nawaz S, Lashari MH, Aziz F, Hayat S. Seroprevalence of human toxoplasmosis in Dera Ghazi Khan, Punjab. Gomal Journal of Medical Sciences. 2011;9:82–5.
130. Ahmed HJ, Mohammed HH, Yusuf MW, Ahmed SF. Human toxoplasmosis in Somalia. Prevalence of *Toxoplasma* antibodies in a village in the lower Scebelli region and in Mogadishu. Transactions of the Royal Society of Tropical Medicine & Hygiene. 1988;82:330–2.
131. Elnahas A, Gerais AS, Elbashir MI, Eldien ES, Adam I. Toxoplasmosis in pregnant Sudanese women. Saudi Medical Journal. 2003;24:868–70.
132. Salah MMS, Al-Shamiri AH, Qaed AA. Seroprevalence and Incidence of *Toxoplasma gondii* among apparently healthy and visually or hearing disabled children in Taiz City, Yemen. Korean Journal of Parasitology. 2010;48(1):71–3.
133. Nijem KI, Al Amleh S. Seroprevalence and associated risk factors of toxoplasmosis in pregnant women in Hebron district, Palestine. Eastern Mediterranean Health Journal. 2009;15:1278–84.
134. Edelhofer R, Prossinger H. Infection with *Toxoplasma gondii* during Pregnancy: Seroepidemiological Studies in Austria. Zoonoses and Public

Health. 2010;57:18–26.

135. Sagel U, Mikolajczyk RT, Krämer A. Seasonal trends in acute toxoplasmosis in pregnancy in the federal state of Upper Austria. *Clinical Microbiology and Infection*. 2009;16:513–7.
136. Breugelmans M, Naessens A, Foulon W. Prevention of toxoplasmosis during pregnancy--an epidemiologic survey over 22 consecutive years. *J Perinat Med* 2004;32:211–4.
137. Punda-Polić V, Tonkić M, Capkun V. Prevalence of antibodies to *Toxoplasma gondii* in the female population of the County of Split Dalmatia, Croatia. *Eur. J. Epidemiol.* 2000;16:875–7.
138. Tonkić M, Punda-Polić V, Sardelić S, Capkun V. [Occurrence of *Toxoplasma gondii* antibodies in the population of Split-Dalmatia County]. *Lijec Vjesn* 2002;124(1-2):19–22.
139. Kanková S, Flegr J. Longer pregnancy and slower fetal development in women with latent “asymptomatic” toxoplasmosis. *BMC Infect. Dis.* 2007;7:114.
140. Kolbekova P, Kourbatova E, Novotna M, Kodym P, Flegr J. New and old risk-factors for *Toxoplasma gondii* infection: prospective cross-sectional study among military personnel in the Czech Republic. *Clin. Microbiol. Infect* 2007;13:1012–7.
141. Röser D, Nielsen HV, Petersen E, Saugmann-Jensen P, Nørgaard-Pedersen B, Nørgaard-Pedersen PB. Congenital toxoplasmosis--a report on the Danish neonatal screening programme 1999-2007. *J. Inherit. Metab. Dis.* 2010 33:S241–247.
142. Lappalainen M, Sintonen H, Koskiniemi M, Hedman K, Hiilesmaa V, Ammälä P, et al. Cost-benefit analysis of screening for toxoplasmosis during pregnancy. *Scand. J. Infect. Dis.* 1995;27:265–72.
143. Anonymous. Trends and sources of zoonoses and zoonotic agents in humans, foodstuffs, animals and feedingstuffs. Finland: European Food Safety Authority; 2009.
144. Villena I, Ancelle T, Delmas C, Garcia P, Brezin AP, Thulliez P, et al. Congenital toxoplasmosis in France in 2007: first results from a national surveillance system. *Euro Surveill.* 2010;15(25).
145. Anonymous. Infektionsepidemiologisches Jahrbuch meldepflichtiger Krankheiten für 2009. Berlin, Germany: Robert Koch Institut; 2010.
146. Mela S, Tsigalou C, Gkioka T, Chrysafidou E, Kampouromiti G. Seroprevalence of rubella, cytomegalovirus and *Toxoplasma gondii* among women of reproductive age in the region of Thrace, Greece. *Clinical Microbiology and Infection*. 2004; 10:396.
147. Diza E, Frantzidou F, Souliou E, Arvanitidou M, Gioula G, Antoniadis A. Seroprevalence of *Toxoplasma gondii* in northern Greece during the last. *Clin. Microbiol. Infect.* 2005;11:719–23.

148. Glynou I, Simou M, Tzortzatos S, Kada H. Seroepidemiology of toxoplasmosis in female population in Greece. *Clin Microbiol Infect.* 2005;11 (Suppl. 2):164.
149. Baka S, Makrakis E, Hassiakos D, Logginidis I, Meretaki S, Koukouni E. Screening for *Toxoplasma gondii*, Rubella virus and Cytomegalovirus in pregnant women. *Clin Microbiol Infect.* 2006(12 (Suppl. 4)):873.
150. Antoniou M, Tzouvali H, Sifakis S, Galanakis E, Georgopoulou E, Liakou V, et al. Incidence of toxoplasmosis in 5532 pregnant women in Crete, Greece: management of 185 cases at risk. *Eur. J. Obstet. Gynecol. Reprod. Biol.* 2004 ;117:138–43.
151. Birgisdottir A, Asbjornsdottir H, Cook E, Gislason D, Jansson C, Olafsson I, et al. Seroprevalence of *Toxoplasma gondii* in Sweden, Estonia and Iceland. *Scand. J. Infect. Dis.* 2006;38:625–31.
152. Ferguson W, Mayne PD, Cafferkey M, Butler K. Lack of awareness of risk factors for primary toxoplasmosis in pregnancy. *Irish Journal of Medical Science.* 2011; 180(4):807-11
153. Miron D, Raz R, Luder A. Congenital toxoplasmosis in Israel: To screen or not to screen. *Isr. Med. Assoc. J.* 2002 Feb;4(2):119–22.
154. De Paschale M, Agrappi C, Clerici P, Mirri P, Manco MT, Cavallari S, et al. Seroprevalence and incidence of *Toxoplasma gondii* infection in the Legnano area of Italy. *Clin. Microbiol. Infect* 2008;14:186–9.
155. Jenum PA, Stray-Pedersen B, Melby KK, Kapperud G, Whitelaw A, Eskild A, et al. Incidence of *Toxoplasma gondii* infection in 35,940 pregnant women in Norway and pregnancy outcome for infected women. *J. Clin. Microbiol.* 1998;36:2900–6.
156. Logar J, Petrovec M, Novak-Antolic Z, Premru-Srsen T, Cizman M, Arnez M, et al. Prevention of congenital toxoplasmosis in Slovenia by serological screening of pregnant women. *Scand. J. Infect. Dis.* 2002;34:201–4.
157. Bartolomé Alvarez J, Martínez Serrano M, Moreno Parrado L, Lorente Ortuño S, Crespo Sánchez MD. [Prevalence and incidence in Albacete, Spain, of *Toxoplasma gondii* infection in women of childbearing age: differences between immigrant and non-immigrant (2001-2007)]. *Rev. Esp. Salud Publica* 2008;82:333–42.
158. Ramos JM, Milla A, Rodríguez JC, Gutiérrez F. [Seroprevalence of antibodies against *Toxoplasma gondii*, rubella virus, hepatitis B virus, HIV and *Treponema pallidum* in foreign pregnant women in Elche (Spain)]. *Med Clin (Barc)* 2007;129:677–8.
159. Gutiérrez-Zufiaurre N, Sánchez-Hernández J, Muñoz S, Marín R, Delgado N, Sáenz MC, et al. [Seroprevalence of antibodies against *Treponema pallidum*, *Toxoplasma gondii*, rubella virus, hepatitis B and C virus, and HIV in pregnant women]. *Enferm. Infecc. Microbiol. Clin* 2004;22:512–6.
160. Boubaker K, Raeber PA, Vaudaux B, Bucher HC, Garweg JG, Hoesli I, et al. Toxoplasmosis during pregnancy and infancy. A new approach for Switzerland. *Swiss Med Wkly* 2008;138:1–8.

161. Stricker R, Sitavanc R, Liassine N, de Marval F. Toxoplasmosis during pregnancy and infancy. *Swiss Med Wkly* 2009;139:643–644; author reply 643–644.
162. Kortbeek LM, Hofhuis A, Nijhuis CDM, Havelaar AH. Congenital toxoplasmosis and DALYs in the Netherlands. *Mem. Inst. Oswaldo Cruz* 2009;104:370–3.
163. Welton N, Ades A. A model of toxoplasmosis incidence in the UK: evidence synthesis and consistency of evidence. *J. R. Stat. Soc. Ser. C-Appl. Stat.* 2005;54:385–404.
164. Department for Environment, Food and Rural Affairs. *Zoonoses Report UK 2009*. London; 2009.
165. Maggi P, Volpe A, Carito V, Schinaia N, Bino S, Basho M, et al. Surveillance of toxoplasmosis in pregnant women in Albania. *New Microbiol.* 2009 Jan;32:89–92.
166. Marinova T, Jordanova D, Ivanova M, Tsevetkova N, Kurdova R. Toxoplasmosis in patients of various clinical groups in Bulgaria. MasComa S, editor. Bologna: Medimond Publishing Co; 2004.
167. Dentico P, Volpe A, Putoto G, Ramadani N, Bertinato L, Berisha M, et al. Toxoplasmosis in Kosovo pregnant women. *New Microbiol.* 2011; 34:203–7.
168. Minbaeva G, Schweiger A, Bodosheva A, Kuttubaev O, Hehl AB, Tanner I, et al. *Toxoplasma gondii* infection in Kyrgyzstan: Seroprevalence, risk factor analysis, and estimate of congenital and AIDS-related Toxoplasmosis. *PLoS Negl Trop Dis.* 2013; 7, e2034
169. Bobić B, Nikolić A, Klun I, Djurković-Djaković O. Kinetics of *Toxoplasma* infection in the Balkans. *Wien. Klin. Wochenschr* 2011;123 Suppl 1:2–6.
170. Sroka J. Seroepidemiology of toxoplasmosis in the Lublin region. *Ann Agric Environ Med* 2001;8:25–31.
171. Nowakowska D, Stray-Pedersen B, Spiewak E, Sobala W, Małafiej E, Wilczyński J. Prevalence and estimated incidence of *Toxoplasma* infection among pregnant women in Poland: a decreasing trend in the younger population. *Clin. Microbiol. Infect.* 2006;12:913–7.
172. Paul M, Petersen E, Szczapa J. Prevalence of congenital *Toxoplasma gondii* infection among newborns from the Poznań region of Poland: validation of a new combined enzyme immunoassay for *Toxoplasma gondii*-specific immunoglobulin A and immunoglobulin M antibodies. *J. Clin. Microbiol.* 2001;39:1912–6.
173. Olariu TR, Darabus GH, Cretu O, Jurovits O, et al. Prevalence of *Toxoplasma gondii* antibodies among women of childbearing age in Timis county. *Lucrari Stiintifice Medicina Veterinara.* 2008;41:367–71.
174. Brkic S, Gajski G, Bogavac M, Maric D, Turkulov V. Seroprevalence of Toxoplasmosis in Vojvodina. *Srp Arh Celok Lek.* 2010;138:333–6.

175. Djurković-Djaković O. Toxoplasmosis as a public health issue in Serbia. *Scientia Medica (Porto Alegre)*. 2010;20:108–12.
176. Djurkovic-Djakovic O, Bobic B, Klun I. Toxoplasmosis in Serbia: time for an action plan rid B-4759-2012. *Parasite-J. Soc. Fr. Parasitol.* 2010;17:187–92.
177. Strharsky J, Klement C, Hruby F. Seroprevalence of *Toxoplasma gondii* Antibodies in the Slovak Republic. *Folia Microbiol.* 2009;54:553–8.
178. Ertug S, Okyay P, Turkmen M, Yuksel H. Seroprevalence and risk factors for *Toxoplasma* infection among pregnant women in Aydin province, Turkey. *BMC Public Health*. 2005 Jun 15;5.
179. Akyar I. Seroprevalence and Co-infections of *Toxoplasma gondii* in Childbearing Age women in Turkey. *Iran J. Public Health*. 2011;40:63–7.
180. Tamer GS, Dundar D, Caliskan E. Seroprevalence of *Toxoplasma gondii*, rubella and cytomegalovirus among pregnant women in western region of Turkey. *Clin. Invest. Med.* 2009;32:E43–E47.
181. Karabulut A, Polat Y, Turk M, Balci YI. Evaluation of rubella, *Toxoplasma gondii*, and cytomegalovirus seroprevalences among pregnant women in Denizli province. *Turk. J. Med. Sci.* 2011;41:159–64.
182. Akarsu GA, Elhan HA, Akarsu C. Retrospective Evaluation of *Toxoplasma gondii* Seropositivity in Fertile and Infertile Women. *Mikrobiyol. Bul.* 2011;45:174–80.
183. Rashap E, Evstigneev I. Analysis of solid phase immunoassay for the serodiagnosis of toxoplasmosis. *Proceedings of the International Scientific Conference for Students and Young Scientists, Dedicated to 85th Anniversary of the Belarusian State Medical University*. Minsk: Belorussian Ministry of Health; 2006. p. 376–8.
184. Szénási Z, Horváth K, Sárkány E, Melles M. Toxoplasmosis surveillance during pregnancy and quality assurance of methods in Hungary. *Wien. Klin. Wochenschr.* 2005;117 Suppl4:29–34.
185. Torgerson PR, Rosenheim K, Tanner I, Ziadinov I, Grimm F, Brunner M, et al. Echinococcosis, toxocarosis and toxoplasmosis screening in a rural community in eastern Kazakhstan. *Trop. Med. Int. Health* 2009;14:341–8.
186. Cvetković D, Bobić B, Jankovska G, Klun I, Panovski N, Djurković-Djaković O. Risk factors for *Toxoplasma* infection in pregnant women in FYR of Macedonia. *Parasite* 2010;17:183–6.
187. Kalitin AV. Epidemiological and immunological aspects of toxoplasmosis in groups of high risk [Candidate of Medical Sciences]. [Omsk]: Government Medical Academy, Omsk; 2007.
188. Starkova TV, Chernikova EA, Gashimova HA. Epidemiological aspects of atopic dermatitis in Combination with toxoplasmosis in the Republic of Dagestan. *Medical Parasitology and Parasitic Diseases [Internet]*. 2010; 2:17–8.

189. Danilenko ED, Gonchrov DB, Kazaryan SM, Mardanli SG, Asratyan AA. The frequency of infection with *Toxoplasma* of women with obstetrical and gynecological pathology. *Epidemiology and Infectious Diseases*. 2008; 1:11–3.
190. Manasova GS. Torch infection as a risk factor for the development of osteopathy in pregnancy. *Intergrative Anthropology*. 2011;1(17):38–42.
191. Konishi E, Houki Y, Harano K, Mibawani R, Marsudi D, Alibasah S, et al. High prevalence of antibody to *Toxoplasma gondii* among humans in Surabaya, Indonesia. *Jpn. J. Infect. Dis*. 2000;53:238–41.
192. Terazawa A, Muljono R, Susanto L, Margono S, Konishi E. High *Toxoplasma* antibody prevalence among inhabitants in Jakarta, Indonesia. *Jpn. J. Infect. Dis*. 2003 Jun;56(3):107–9.
193. Kurukulasuriya SN, Kularathna SAM, Wijesundara DSS, Rajapakse RPVJ. Sero-prevalence of toxoplasma gondii infection in two apparently healthy populations in Rajawatta (Kandy district) and Hemmathagama (Kegalle district). *Proc Peradenkya Univers Res Sessions*. Sri Lanka: University of Peradeniya; 2009. p. 60–2.
194. Subasinghe SDLP, Karunaweera ND, Kaluarachchi A, Abayaweera CA, Gunatilake MH, Ranawaka J, et al. *Toxoplasma gondii* seroprevalence among two selected groups of pregnant women. *Sri Lankan Journal of Infectious Diseases*. 2011;1:9–17.
195. Sukthana Y. Difference of *Toxoplasma gondii* antibodies between Thai and Austrian pregnant women. *Southeast Asian Journal of Tropical Medicine and Public Health*. 1999;30:38–41.
196. Sukthana Y, Chintana T, Supathanapong W, Siripanth C, Lekkla A, Chiabchalard R. Prevalence of toxoplasmosis in selected populations in Thailand. *J. Trop. Med. Parasitol*. 2000;23:53–8.
197. Dhumne M, Sengupta C, Kadival G, Rathinaswamy A, Velumani A. National seroprevalence of *Toxoplasma gondii* in India. *J. Parasitol*. 2007;93:1520–1.
198. Sundar P, Mahadevan A, Jayshree RS, Subbakrishna DK, Shankar SK. *Toxoplasma* seroprevalence in healthy voluntary blood donors from urban Karnataka. *Indian J. Med. Res*. 2007;126:50–5.
199. Elhence P, Agarwal P, Prasad KN, Chaudhary RK. Seroprevalence of *Toxoplasma gondii* antibodies in North Indian blood donors: implications for transfusion transmissible toxoplasmosis. *Transfus. Apher. Sci*. 2010;43:37–40.
200. Rai SK, Kubo T, Yano K, Shibata H, Matsuoka A, Uga S, et al. *Toxoplasma gondii* infection in Eastern Nepal – a seroepidemiological study. *J Infect Dis Antimicrob Agents*. 1998;15:105–9.
201. Rai SK, Upadhyay MP, Shrestha HG. *Toxoplasma* infection in selected patients in Kathmandu, Nepal. *Nepal Med Coll J* 2003;5:89–91.
202. Karunajeewa H, Siebert D, Hammond R, Garland S, Kelly H. Seroprevalence of varicella zoster virus, parvovirus B19 and *Toxoplasma gondii* in a Melbourne obstetric population: implications for management. *Aust N Z J Obstet Gynaecol* 2001;41:23–8.

203. Iashiyama S, Ashitaka Y. Examination of toxoplasmosis in pregnant women. *Bulletin of Kobe Takiwa University*. 2009;1:31–9.
204. Yamada H, Nishikawa A, Yamamoto T, Mizue Y, Yamada T, Morizane M, et al. Prospective study of congenital toxoplasmosis screening with use of IgG avidity and multiplex nested PCR methods. *J. Clin. Microbiol.* 2011 ;49:2552–6.
205. Yozen F, Hiroshi T, Kazuo M, Masanobu T, Akiko T, Yamaguchi M, et al. Seroprevalence of *Toxoplasma* antibodies in pregnant women. *Acta Neonatal Japon.* 2001;37:479–85.
206. Morris A, Croxson M. Serological evidence of *Toxoplasma gondii* infection among pregnant women in Auckland. *N. Z. Med. J.* 2004 20 ; 117(1189):U770.
207. Wong A, Tan KH, Tee CS, Yeo GS. Seroprevalence of cytomegalovirus, toxoplasma and parvovirus in pregnancy. *Singapore Med J* 2000;41:151–5.
208. Jiang, Song-yun, Bian, Hong-zhen, Yang, Yun, Zhou, Hang-juan, Zhou, Jian-hua, Lu, Dan. Study on *Toxoplasma* infection among pregnant women in Hongkou district, Shanghai. *Shanghai Journal of Preventive Medicine*. 2005;17:210–2.
209. Jing L, Du C, Han Y, Zhang P, Li P. Survey of *Toxoplasma gondii* Infection in 93 Pregnant Women in DaLian. *Practical Preventive Medicine*. 2005;12:653–5.
210. Xiao G, Huang W, Jiang Y, Huang Y, Zhu X. Determination of TORCH specific IgM in 2364 pregnant women in Shenzhen City. *China Tropical Medicine*. 2006;6:766–7.
211. Song Y, Yin X, Wang R, Hu B. The analysis of 2718 pregnant woman's TORCH infection in Urumqi. *Chinese Journal of Birth Health & Heredity*. 2002;10:58–60.
212. Gong Z, Zhou H, Liang X, Peng S, Deng H, Tang Y. A Clinical Study on TORCH infections in Pregnant Women. *Practical Preventive Medicine*. 2005;12:155–6.
213. Zhang X, Huang W-X, Wang L. Study on the measure of TORCH -IgM in pregnant women and the relationship with outcomes of abnormal fetus. *Maternal and Child Health Care of China*. 2008;23:1485–6.
214. Luo lan, Guo Z, Feng Y, Zhang L. The investigation and analysis of TORCH infections in pregnant women of Kunming area. *Chinese Journal of Birth Health & Heredity*. 2002;10:59–60.
215. Guo Z, Xiao X, Zhang L. The Investigation and Analysis of TORCH Infection in 5219 Pregnant Women of Kunming Area. *Journal of Kunming Medical University*. 2008;29:48–51.
216. Hu Y, Wang S, Hu S long. An investigation on the condition of TORCH infections in Jinhua City from 2002 to 2005. *Disease Surveillance*. 2006;21:353–4.

217. Kuang H, Fu W, Cao L. TORCH Infection on 2067 Cases of Women with Childbearing Age in Chongqing. *Chinese Journal of Nosocomiology*. 2006;16:1254–6.
218. Liu J, Zhang L, Zhao X, Ye G, Cai X, Liu Q. Study on fetuses and infants' abnormalities induced by toxoplasmosis infection in pregnancy. *Chinese Journal of Child Health Care*. 2004;12:313–5.
219. Zhao W, Chen Z. Survey and Study of TORCH Infection in Pregnant Women in Huhhot. *Nei Moivgol Medical Journal*. 2004;36:111–3.
220. Wei S, Lu S, Xiao X, Qi Y, Liu G. The investigation and analysis of TORCH infection in pregnant women of Ningde district. *Chinese Journal of Birth Health & Heredity*. 2005;13:108–9.
221. Xu P, Ni J, Lu W. Analysis on TORCH-IgM antibodies detected in Ningbo City from 2005 to 2008. *Chinese Journal of Birth Health & Heredity*. 2010;18:73–4.
222. Li J, Shi H, Liu J. Primary screening of TORCH infection in pre-pregnant women:An analysis of 9928 cases in Shandong province. *Chinese Journal of Healthy Birth & Child Care*. 2009;15:216–8.
223. Liu Q, Lin N, Wang L, Tong J, Zhang J, He J, et al. Primary screening of TORCH infection in pre-pregnant women:An analysis of 20000 cases in Jiangsu. *Chinese Journal of Birth Health & Heredity*. 2008;16:97–9.
224. Zhang T, Yang Y, Li P, Zhao S, Li Y, Luo M, et al. Investigation of torch infection in women of child-bearing age in Shanxi province. *Modern Preventive Medicine*. 2007;34:227–9.
225. Wang Y, Ge H, Pang L, Zheng M. Investigation of TORCH infections in women of child-bearing age in South Zhejiang. *Chinese Journal of Health Laboratory Technology*. 2011;21:683–4.
226. Ding H, Liu H, Han J, Chen W, Xu R, Li X. Detection Results of Serum TORCH-IgM in 7,650 Pregnant Women. *Practical Preventive Medicine*. 2009;16:160–2.
227. Guo Y, Huang Z, Qiu A, Peng H, Yang J. Analysis on TORCH Infection of Women in Childbearing Age in Jinghong. *Journal of Kunming Medical University*. 2009;30:104–5.
228. Fu Y, Xi Y, Wu L, Chen Y, Zhao Y. Clinical Value of ELISA for Detecting TORCH-IgM. *Journal of Clinical Research*. 2008;25:1358–60.
229. Peng H, Wang Z, Zhou Y, Wang X, Zeng S, Xiao X, et al. Exploration on the Test of Pregnant Woman's TORCH Infection and Sound Child Rearing in Ji'An City. *Journal of Practical Medical Techniques*. 2007;14:1995–6.
230. Li Y, Li H, Zhou X, Liu J, Guan X, Yang L. Related analysis of TORCH and pregnancy during pregnancy. *Journal of Clinical and Experimental Medicine*. 2008;7:2–3.

231. Qiao Y, Ye Z, Zou J. The Investigation of TORCH Infections in Pregnant Women of Meizhou City. *Journal of Tropical Medicine*. 2010;10:1466–7.
232. Guo L, Zhao W. The analysis of pregnant woman's TORCH infection in Huhehotarea. *Chinese Journal of Birth Health & Heredity*. 2009;17:105.
233. Guo Z, Liu Y, Zhang LH, Li H, Lin S, Li D. The analysis of 1982 pregnant woman's TORCH in Dongguan. *Chinese Journal of Birth Health & Heredity*. 2009;17:77–8.
234. Yang K. Analysis on TORCH-IgM antibodies detected in 1500 pregnant women. *China Medical Engineering*. 2009;17:31–3.
235. Ram P, Mataika JU, Metcalfe RV, Bettelheim KA. Antibody levels to *Brucella abortus*, *Toxoplasma gondii*, and *Leptospira* serogroups, in sera collected from healthy people in Fiji. *Comp. Immunol. Microbiol. Infect. Dis.* 1982;5:397–403.
236. lapierre J. Note sur la prévalence de la toxoplasmose au Laos. *Médecine et Maladies Infectieuses*. 1995;25:1016–7.
237. Nissapatorn V, Noor Azmi MA, Cho SM, Fong MY, Init I, Rohela M, et al. Toxoplasmosis: prevalence and risk factors. *J Obstet Gynaecol* 2003;23:618–24.
238. Adams WH, Kindermann WR, Walls KW, Heotis PM. *Toxoplasma* antibodies and retinochoroiditis in the Marshall Islands and their association with exposure to radioactive fallout. *Am. J. Trop. Med. Hyg.* 1987 ;36:315–20.
239. Ménard D. [Toxoplasmosis, rubella, syphilis, hepatitis B and HIV infection in women being followed for pregnancy in a population on the east coast of New Caledonia]. *Bull Soc Pathol Exot*2001; 94(5):403–5.
240. Klufio CA, Delamare O, Amoa AB, Kariwiga G. The prevalence of toxoplasma antibodies in pregnant patients attending the Port Moresby General Hospital antenatal clinic: a seroepidemiological survey. *P N G Med J*. 1993;36:4–9.
241. Kawashima T, Khin-Sane-Win, Kawabata M, Barzaga N, Matsuda H, Konishi E. Prevalence of antibodies to *Toxoplasma gondii* among urban and rural residents in the Philippines. *Southeast Asian J. Trop. Med. Public Health* 2000 ;31:742–6.
242. Shin D-W, Cha D-Y, Hua QJ, Cha G-H, Lee Y-H. Seroprevalence of *Toxoplasma gondii* infection and characteristics of seropositive patients in general hospitals in Daejeon, Korea. *Korean J. Parasitol.* 2009;47:125–30.
243. Han K, Shin D-W, Lee T-Y, Lee Y-H. Seroprevalence of *Toxoplasma gondii* infection and risk factors associated with seropositivity of pregnant women in Korea. *J. Parasitol.* 2008;94(4):963–5.
244. Song K-J, Shin J-C, Shin H-J, Nam H-W. Seroprevalence of toxoplasmosis in Korean pregnant women. *Korean J. Parasitol.* 2005 ;43:69–71.
245. Hu I-J, Chen P-C, Su F-C, Hsieh C-J, Jeng S-F, Liao H-F, et al. Perinatal toxoplasmosis, northern Taiwan. *Emerging Infect. Dis.* 2006;12:1460–1.

246. Lin Y-L, Liao Y-S, Liao L-R, Chen F-N, Kuo H-M, He S. Seroprevalence and sources of *Toxoplasma* infection among indigenous and immigrant pregnant women in Taiwan. *Parasitol. Res.* 2008;103:67–74.
247. Buchy P, Follézou JY, Lien TX, An TTN, Tram LT, Tri DV, et al. [Serological study of toxoplasmosis in Vietnam in a population of drug users (Ho Chi Minh city) and pregnant women (Nha Trang)]. *Bull Soc Pathol Exot* 2003;96:46–7.
248. Udonsom R, Lekkla A, Chung PTT, Cam PD, Sukthana Y. Seroprevalence of *Toxoplasma gondii* antibody in Vietnamese villagers. *Southeast Asian J. Trop. Med. Public Health* 2008;39:14–8.