Supplemental Material

Respiratory syncytial virus hospitalisation by chronological month of age and by birth month in infants

CONTENTS

Supplementary Tables

Supplementary Table 1. Quality Assessment Form of published studies from literature review and expert recommendation

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Albogami. 2018 [1]	Saudi Arabia, Riyadh	2	0	1	0	2	5
Ali. 2017 [2]	Pakistan, Karachi	2	1	1	0	2	6
Amini. 2019 [3]	Canada, Quebec	2	2	2	0	2	8
Bozdemir. 2016 [4]	Turkey, Bursa	2	2	2	0	2	8
Brini. 2017 [5]	Tunisia, Sousse	2	2	1	0	2	7
Chan. 1998 [6]	Malaysia, Kuala Lumpur	2	2	1	1	2	8
Constantopoulos. 2002 [7]	Greece	2	2	2	1	2	9
de Dios. 2010 [8]	Spain	2	0	2	0	2	6
Dede. 2010 [9]	Australia, Central Australia	2	2	1	1	2	8
Do. 2016 [10]	Vietnam, Ho Chi Minh	2	2	1	0	2	7
Dougherty. 2000 [11]	United States, Massachusetts	2	0	1	2	1	6
Duppenthaler. 2001 [12]	Switzerland, Bern	2	2	1	1	2	8
Fagbo. 2017 [13]	Saudi Arabia, Riyadh	2	2	1	2	2	9
Ferolla. 2013 [14]	Argentina, Buenos Aires	1	2	2	2	0	7

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Hacimustafaoglu. 2013 [15]	Turkey, Bursa	2	2	2	1	2	9
Hall. 2013 [16]	United States, Nashville, Tennessee, Rochester, New York, Cincinnati, Ohio	2	2	2	2	2	10
Hardelid. 2019 [17]	United Kingdom, Scotland	2	1	2	2	1	8
Hasegawa. 2015 [18]	United States, Finland	2	2	2	0	2	8
Jepsen. 2018 [19]	Denmark	2	1	2	2	2	9
Jin. 2012 [20]	China, Lanzou	2	0	1	0	2	5
Johnson. 2012 [21]	United States, Louisiana	2	1	2	1	0	6
Kusuda. 2011 [22]	Japan	2	0	2	2	0	6
Liu. 2014 [23]	China, Guangzhou	2	2	1	0	2	7
Lloyd. 2014 [24]	United States, Arizona	2	1	2	1	2	8
Lloyd. 2014 [24]	United States, Iowa	2	1	2	1	2	8
Lloyd. 2014 [24]	United States, New York	2	1	2	1	2	8
Lloyd. 2014 [24]	United States, Oregon	2	1	2	1	2	8
Lloyd. 2014 [24]	United States, Wisconsin	2	1	2	1	2	8
Manoha.2007 [25]	France, Dijon	2	2	1	1	0	6
Mansbach. 2016 [26]	United States	2	2	2	0	2	8

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
McLaurin. 2016 [27]	United States	1	1	2	0	2	6
McMorrow. 2019 [28]	South Africa, Klerksdorp, Pietermaritzburg	2	2	1	2	2	9
Murray. 2014 [29]	United Kingdom, England	2	1	2	2	0	7
Nielsen. 2003 [30]	Denmark, Fyns Amt and Københavns Amt	2	2	2	2	0	8
Oliveira-Santos. 2016 [31]	Portugal, Vila Real	2	2	2	2	0	8
Pham. 2020 [32]	Australia, Melbourne	2	2	1	0	2	7
Prasad. 2019 [33]	New Zealand, Auckland	2	2	2	0	2	8
Purcell. 2004 [34]	United States, Texas	2	2	1	0	2	7
Reeves. 2016 [35]	United Kingdom, England	2	2	2	2	0	8
Resch. 2020 [36]	Austria, Graz	2	2	1	0	2	7
Rha. 2019 [37]	South Africa	2	2	2	0	2	8
Rodriguez-Auad. 2012 [38]	Mexico, Mexico City	2	2	1	0	2	7
RogLICss. 2009 [39]	Croatia, Zegreb	2	0	1	2	2	7
Rossi, 2007 [40]	Italy	2	0	2	0	2	6
Saravanos. 2019 [41]	Australia	2	1	2	2	0	7
Simon. 2008 [42]	Germany	2	2	2	0	2	8

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Singleton. 2006 [43]	United States, Alaska	2	2	2	2	1	9
Singleton. 1995 [44]	United States, Alaska	1	0	2	2	2	7
Trenholme. 2017 [45]	New Zealand, South Auckland	2	2	1	0	2	7
Tsolia. 2003 [46]	Greece, Athens	2	2	1	2	1	8
Valkonen. 2009 [47]	Finland, Turku	2	1	1	2	1	7
Vicente. 2003 [48]	Spain, Gipuzkoa	2	2	1	1	2	8
Viguria. 2018 [49]	Spain	2	2	2	0	2	8
Weigl. 2001 [50]	Germany, Kiel	2	2	1	1	2	8
Yanagisawa. 2018 [51]	Japan, Nagano	2	2	2	2	1	9
Zhang. 2014 [52]	China, Shanghai	2	2	1	0	2	7
Arriola. 2020 [53]	United States, California, Georgia, Oregon, Minnesota	2	2	2	0	2	8
Bandeira. 2023 [54]	Portugal	2	1	2	1	2	8
Barbati. 2020 [55]	Italy, Tuscana	2	0	2	2	1	7
Demont. 2021 [56]	France	2	1	2	0	2	7
Gebremedhin. 2022 [57]	Australia, Western Australia	2	0	2	0	2	6
Hamrin. 2020 [58]	Sweden, Stockholm	2	2	1	1	2	8

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Havdal. 2022 [59]	Norway	2	2	2	1	2	9
Homaira. 2020 [60]	Australia, New South Wales	2	1	2	0	2	7
Illan Montero. 2023 [61]	Belgium, Brussels	1	2	1	1	2	7
Jia. 2022 [62]	China, Shanghai	2	2	1	1	2	8
Klink. 2020 [63]	Jordan, Amman	1	2	1	2	2	8
Kobayashi. 2021 [64]	Japan	1	1	2	2	0	6
Kume. 2022 [65]	Japan, Koriyama and Fukushima	2	2	1	0	2	7
Liu. 2020 [66]	South Africa, Soweto	1	0	1	1	2	5
McGinley. 2022 [67]	Netherlands, Spain, and United Kingdom	2	2	1	0	2	7
Mira-Iglesias. 2021 [68]	Spain, Valencia	2	2	2	2	2	10
Moyes. 2023 [69]	South Africa	2	2	2	2	2	10
Nyawanda. 2023 [70]	Kenya	2	2	2	2	2	10
Prasad. 2020 [71]	New Zealand, Auckland	2	2	1	0	2	7
Reeves. 2020 [72]	United Kingdom, Scotland	2	0	2	2	2	8
Reeves. 2020 [72]	United Kingdom, England	2	1	2	2	2	9
Reeves. 2020 [72]	Netherlands	2	1	2	2	2	9

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Reeves. 2020 [72]	Finland	2	0	2	2	2	8
Reeves. 2020 [72]	Italy, Veneto	2	1	2	2	2	9
Reeves. 2020 [72]	Norway	2	1	2	2	2	9
Reeves. 2020 [72]	Denmark	2	1	2	2	2	9
Ren. 2023 [73]	China, Zhengzhou	2	2	1	1	2	8
Rha. 2020 [74]	United States, Rochester, New York, Cincinnati, Ohio	2	2	2	2	2	10
Rzad. 2022 [75]	Poland	2	1	2	0	1	6
Shmueli. 2021 [76]	Israel, Petach-Tikva	2	2	1	0	2	7
Valley-Omar. 2022 [77]	South Africa, KwaZulu-Natal, North West Provinces	1	2	1	0	2	6
Vianna. 2021 [78]	Brazil, Espirito Santo	2	0	2	2	2	8
Vila. 2023 [79]	Spain, Catalonia	2	0	1	0	2	5
Wildenbeest. 2023 [80]	Spain, Finland, England, Scotland, the Netherlands	2	2	1	0	2	7
Ye. 2022 [81]	China, Hangzhou	2	2	1	0	2	7
Zheng. 2020 [82]	China, Sichuan	2	2	1	0	2	7
Bouckaert. 2023 [83]	Belgium, Nationwide	2	1	2	0	2	7
Ferolla. 2019 [84]	Argentina, Buenos Aires	2	2	1	2	1	8

Study	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
Hernandez-Rivas. 2023 [85]	Spain, Madrid	2	0	1	0	2	5
Morgan. 2023 [86]	South Africa, Cape Town	2	0	1	0	2	5
Munoz-Quiles. 2023 [87]	Spain, Valencia	2	1	2	2	2	9
SHICshijo. 2023 [88]	Japan, Tokushima Prefecture	2	0	2	2	2	8
Buchan. 2023[89]	Canada, Ontario	2	1	2	2	2	9

Supplementary Table 2. Quality Assessment Form of studies identified through re-screening our previously published global analysis [90,91]

Study ID	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
U013	Argentina, Buenos Aires	2	2	2	1	2	9
U015	Brazil, Belo Horizonte	2	1	2	1	2	8
U016	Chile, Concepcion	2	2	2	1	2	9
U017	Chile, Iquique	2	2	2	1	2	9
U018	China, Jingzhou	1	0	2	1	2	6
U021	Guatemala, Santa Rosa	2	2	2	1	2	9
U022	Guatemala, Quetzaltenango	1	2	2	1	2	8
U025	Indonesia, Lombok	2	2	2	1	2	9
U032	Panama, David City	2	0	2	1	2	7
U034	South Africa, Gauteng province	1	2	2	1	2	8
U037	South Africa, Soweto	1	2	2	1	2	8
U039	Thailand, Sa Kaeo and Nakhon Phanom	1	0	2	1	2	6
U041	United States, Alaska	2	2	2	1	2	9
U042	United States, Colorado	1	2	2	1	2	8

Study ID	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
U044	United States, Arizona	2	2	2	1	2	9
U054	China, Nationwide	2	2	2	1	2	9
U063	Jordan, Amman	1	2	2	1	2	8
U067	Pakistan, Karachi	1	2	2	1	2	8
U075	Philippines, Tacloban	1	0	2	1	2	6
U076	South Africa, Mpumalanga	1	2	2	1	2	8
U101	United Kingdom, Scotland	2	0	2	1	2	7
U121	Australia, Western Australia	2	0	2	1	2	7
U174	South Africa, Piertermaritzburg	1	2	2	1	2	8
U185	Australia, Melbourne	2	2	2	1	2	9
U241	Korea, Rep Goyang-si	2	0	2	1	2	7
U244	Russian Federation, Six cities	1	0	2	1	2	6
U255	South Africa, Klerksdorp	1	2	2	1	2	8

Supplementary Table 3. Quality Assessment Form of unpublished studies shared by Respiratory Virus Global Epidemiology Network

Study ID	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
D062	Germany, Berlin	1	2	2	2	2	9
D106	Finland, Turku	2	0	2	2	2	8
D153	Kenya, Kilifi	1	0	2	2	2	7
D171	Peru, Lima, Iquitos	1	0	2	2	2	7
D180	United States, Alaska	0	0	2	2	2	6
D200	Singapore, Singapore city	1	2	2	2	2	9
D204	Georgia, Nationwide	1	0	2	2	2	7
D216	France, Lyon	1	2	2	2	2	9
D223	New Zealand, Auckland	1	1	2	2	2	8
D231	Portugal, Lisbon	1	0	2	2	2	7
D237	Croatia, Split	1	0	2	2	2	7
D258	United Kingdom, England	0	1	2	2	2	7
D259	China, Zhengzhou	2	2	2	2	2	10
D260	Argentina, Buenos Aires	2	2	2	2	2	10

Study ID	Location	QA_1	QA_2	QA_3	QA_4	QA_5	Total score
D261	Chile, Concepcion	2	2	2	2	2	10
D262	Chile, Iquique	2	2	2	2	2	10
D264	South Africa, Nationwide	1	2	2	2	2	9
D265	Australia, Western Australia	2	0	2	2	2	8

Supplementary Table 4. Summary of published studies from literature review and expert recommendation

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Albogami. 2018 [1]	Saudi Arabia, Riyadh	2013/01-2014/12	HICs	DFA	ARI	3	2	814
Ali. 2017 [2]	Pakistan, Karachi	2009/08-2012/06	LMICs	PCR	ARI	3	2	148
Amini. 2019 [3]	Canada, Quebec	2008/01-2018/12	HICs	PCR	ARI	3	2	207
Bozdemir. 2016 [4]	Turkey, Bursa	2008/01-2008/12	UMICs	Antigen test	ALRI	3	1	220
Brini. 2017 [5]	Tunisia, Sousse	2013/09-2014/12	UMICs	PCR	ARI	3	2	108
Chan. 1998 [6]	Malaysia, Kuala Lumpur	1982/01-1997/12	LMICs	DFA	ALRI	4	4	972
Constantopoulos. 2002 [7]	Greece	1999/01-2000/05	HICs	Rapid immunoassay method	ARI	4	3	496
de Dios. 2010 [8]	Spain	2007/10-2008/03	HICs	ICD-9	Acute bronchiolitis	3	2	1223
Dede. 2010 [9]	Australia, Central Australia	2000/01-2004/12	HICs	DFA	Bronchiolitis	4	2	142
Do. 2016 [10]	Vietnam, Ho Chi Minh	2009/05-2010/12	LMICs	PCR	LRTI	3	1	248
Dougherty. 2000 [11]	United States, Massachusetts	1994/10-1997/04	HICs	IFA	Any RSV disease	12	12	216
Duppenthaler. 2001 [12]	Switzerland, Bern	1998/09-2000/06	HICs	DFA	Any RSV disease	5	4	176

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Fagbo. 2017 [13]	Saudi Arabia, Riyadh	2012/01-2013/12	HICs	PCR	ARI	6	6	381
Ferolla. 2013 [14]	Argentina, Buenos Aires	2011/01-2011/12	UMICs	PCR	SARI	12	12	675
Hacimustafa oglu. 2013 [15]	Turkey, Bursa	2010/03-2011/02	UMICs	Immunochromato graphy test	LRTI	3	1	220
Hall. 2013 [16]	United States, Nashville, Tennessee, Rochester, New York, Cincinnati, Ohio	2000/10-2005/03	HICs	PCR	ARI	12	12	462
Hardelid. 2019 [17]	United Kingdom, Scotland	2009/10-2012/09	HICs	NK	Any RSV disease	12	12	3653
Hasegawa. 2015 [18]	United States, Finland	2007/01-2010/12	HICs	PCR	Bronchiolitis	3	1	1555
Jepsen. 2018 [19]	Denmark	2010/01-2015/06	HICs	ICD-10	Any RSV disease	7	6	9539
Jin. 2012 [20]	China, Lanzou	2006/12-2009/11	LMICs	PCR	ALRI	3	1	197
Johnson. 2012 [21]	United States, Louisiana	1999/01-2010/12	HICs	ICD-9	Any RSV disease	4	4	21070
Kusuda. 2011 [22]	Japan	2007/10-2008/04	HICs	NK	Any RSV disease	12	12	459
Liu. 2014 [23]	China, Guangzhou	2009/07-2012/06	UMICs	PCR	ARI	3	2	500
Lloyd. 2014 [24]	United States, Arizona	1996/07-2006/06	HICs	ICD-9	Any RSV disease	5	4	16041
Lloyd. 2014 [24]	United States, Iowa	1996/07-2006/06	HICs	ICD-9	Any RSV disease	5	4	10140

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Lloyd. 2014 [24]	United States, New York	1996/07-2006/06	HICs	ICD-9	Any RSV disease	5	4	38827
Lloyd. 2014 [24]	United States, Oregon	1996/07-2006/06	HICs	ICD-9	Any RSV disease	5	4	6608
Lloyd. 2014 [24]	United States, Wisconsin	1996/07-2006/06	HICs	ICD-9	Any RSV disease	5	4	10680
Manoha.2007 [25]	France, Dijon	2002/12-2004/04	HICs	PCR	ARI	4	4	222
Mansbach. 2016 [26]	United States	2011/11-2014/04	HICs	PCR	Bronchiolitis	3	1	580
McLaurin. 2016 [27]	United States	2003/07-2013/06	HICs	DRG-codes, ICD-9-CM	Any RSV disease	2	1	24487
McMorrow. 2019 [28]	South Africa, Klerksdorp, Pietermaritzburg	2011/01-2016/12	UMICs	PCR	ALRI	12	12	681
Murray. 2014 [29]	United Kingdom, England	2007/04-2008/03	HICs	ICD-10	bronchiolitis	12	12	1996
Nielsen. 2003 [30]	Denmark, Fyns Amt and Københavns Amt	1990/01-1994/12	HICs	IF	ARI	12	12	894
Oliveira-Santos. 2016 [31]	Portugal, Vila Real	2005/09-2015/12	HICs	IF	Bronchiolitis	12	12	293
Pham. 2020 [32]	Australia, Melbourne	2005/03-2015/08	HICs	IF, PCR	Any RSV disease	3	2	440
Prasad. 2019 [33]	New Zealand, Auckland	2012/04-2015/12	HICs	PCR	ARI	3	2	1127
Purcell. 2004 [34]	United States, Texas	2000/07-2002/06	HICs	Rapid antigen tests, viral culture	RSV-LRI	3	2	735

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Reeves. 2016 [35]	United Kingdom, England	2010/06-2014/06	HICs	PCR	RSV detection	12	12	9935
Resch. 2020 [36]	Austria, Graz	2009/01-2015/12	HICs	ELISA, PCR	RSV detection	3	2	677
Rha. 2019 [37]	South Africa	2009/02-2014/12	UMICs	PCR	ALRI	3	2	2020
Rodriguez-Auad. 2012 [38]	Mexico, Mexico City	2004/01-2008/12	UMICs	IFA	ARI	3	1	129
Roglic. 2009 [39]	Croatia, Zegreb	2003/01-2009/12	UMICs	DFA	Bronchiolitis	7	7	392
Rossi, 2007 [40]	Italy	2000/10-2004/04	HICs	Immunosezymatic test	LRTI	3	2	139
Saravanos. 2019 [41]	Australia	2006/01-2015/12	HICs	ICD-10	Any RSV disease	12	12	46374
Simon. 2008 [42]	Germany	1999/11-2005/04	HICs	Antigen detection, DIF, cell culture, PCR	RSV detection	3	1	1168
Singleton. 2006 [43]	United States, Alaska	1994/07-2004/06	HICs	EIA, DFA, viral culture	LRTI	12	12	1043
Singleton. 1995 [44]	United States, Alaska	1991/10-1993/09	HICs	Enyme immunoassay, fluorescent antibody, viral culture	RSV detection	12	12	153
Trenholme. 2017 [45]	New Zealand, South Auckland	2009/08-2011/07	HICs	PCR	ALRI	3	2	448
Tsolia. 2003 [46]	Greece, Athens	1997/02-2000/06	HICs	DIF	Bronchiolitis	12	12	290

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Valkonen. 2009 [47]	Finland, Turku	1988/08-2001/12	HICs	FA	Bronchiolitis	12	12	180
Vicente. 2003 [48]	Spain, Gipuzkoa	1996/07-2000/06	HICs	ELISA	ARI	4	3	325
Viguria. 2018 [49]	Spain	2010/01-2015/12	HICs	rapid immunochromatography test, PCR	RSV detection	2	1	463
Weigl. 2001 [50]	Germany, Kiel	1996/07-1999/06	HICs	PCR	ARI	4	3	111
Yanagisawa. 2018 [51]	Japan, Nagano	2016/04-2017/03	HICs	NK	RSV detection	12	12	210
Zhang. 2014 [52]	China, Shanghai	2011/03-2012/02	UMICs	IFA	ALRI	3	2	913
Arriola. 2020 [53]	United States, California, Georgia, Oregon, Minnesota	2014/10-2015/04	HICs	PCR, antigen detection, viral culture, FA	Any RSV diseases	3	2	1176
Bandeira. 2023 [54]	Portugal	2015/01-2018/12	HICs	ICD-9 CM, ICD-10 CM	Any RSV disease	5	4	6183
Barbati. 2020 [55]	Italy, Tuscana	2014/09-2019/08	HICs	PCR	Any RSV disease	12	12	509
Demont. 2021 [56]	France	2010/01-2018/12	HICs	ICD-10	Any RSV disease	3	2	281824
Gebremedhin. 2022 [57]	Australia, Western Australia	2000/01-2012/12	HICs	IF, viral culture, complement-fxation tests, PCR	Any RSV disease	3	2	5926
Hamrin. 2020 [58]	Sweden, Stockholm	1986/01-1998/12	HICs	ICD-10, DFA, PCR	Any RSV disease	4	4	2806

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Havdal. 2022 [59]	Norway	2015/01-2018/12	HICs	PCR, ICD-10	Any RSV disease	5	4	434
Homaira. 2020 [60]	Australia, New South W ales	2001/01-2011/12	HICs	ICD-10	Any RSV disease	3	2	14808
Illan Montero. 2023 [61]	Belgium, Brussels	2014/09-2015/04	HICs	lateral flow chromatography test, viral culture	ARTI or fever of unknown origin	4	4	151
Jia. 2022 [62]	China, Shanghai	2018/12-2019/12	UMICs	PCR	Any RSV disease	4	3	128
Klink. 2020 [63]	Jordan, Amman	2010/03-2013/03	UMICs	PCR	ARI	12	12	1229
Kobayashi. 2021 [64]	Japan	2017/01-2018/12	HICs	ICD-10	Any RSV disease	12	12	2913
Kume. 2022 [65]	Japan, Koriyama and Fu kushima	2017/09-2019/12	HICs	PCR	RTI	3	1	241
Liu. 2020 [66]	South Africa, Soweto	2015/01-2017/12	UMICs	PCR	LRTI	4	3	147
McGinley. 2022 [67]	Netherlands, Spain, and United Kingdom	2017/01-2019/12	HICs	PCR, rapid antigen detection	Any RSV disease	3	2	233
Mira-Iglesias. 2021 [68]	Spain, Valencia	2014/01-2018/12	HICs	PCR； ICD-10	RTI	12	12	631
Moyes. 2023 [69]	South Africa	2011/01-2016/12	UMICs	PCR	LRTI, SARI	12	12	218568
Nyawanda. 2023 [70]	Kenya	2010/01-2018/12	LMICs	NK	SARI	12	12	1599
Prasad. 2020 [71]	New Zealand, Auckland	2014/01-2016/12	HICs	PCR	ARI, SARI	3	2	492

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Reeves. 2020 [72]	United Kingdom, Scotland	2001/01-2016/12	HICs	ICD-10	RTI	12	12	16313
Reeves. 2020 [72]	United Kingdom, England	2007/01-2017/12	HICs	ICD-10	RTI	12	12	63369
Reeves. 2020 [72]	Netherlands	2013/01-2017/12	HICs	ICD-10	RTI	12	12	6703
Reeves. 2020 [72]	Finland	2001/01-2017/12	HICs	ICD-10	RTI	12	12	19872
Reeves. 2020 [72]	Italy, Veneto	2012/01-2017/12	HICs	ICD-9-CM	RTI	12	12	2154
Reeves. 2020 [72]	Norway	2008/01-2017/12	HICs	ICD-10	RTI	12	12	11677
Reeves. 2020 [72]	Denmark	2001/01-2017/12	HICs	ICD-10	RTI	12	12	20871
Ren. 2023 [73]	China, Zhengzhou	2018/12-2019/12	UMICs	PCR	ARI	4	3	274
Rha. 2020 [74]	United States, Rochester, New York, Cincinnati, Ohio	2015/11-2016/06	HICs	PCR	ARI	12	12	754
Rzad. 2022 [75]	Poland	2010/01-2019/12	HICs	ICD-10	Any RSV disease	3	2	47041
Shmueli. 2021 [76]	Israel, Petach-Tikva	2014/10-2018/04	HICs	PCR, ICD codes	Acute bronchiolitis	2	1	767
Valley-Omar. 2022 [77]	South Africa, KwaZulu-Natal, North West Provinces	2012/01-2015/12	UMICs	PCR	Severe respiratory illness	3	2	469
Vianna. 2021 [78]	Brazil, Espirito Santo	2016/03-2018/12	UMICs	PCR	SARI	12	12	269

Study	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
Vila. 2023 [79]	Spain, Catalonia	2014/01-2018/12	HICs	IFA, PCR	Bronchiolitis	2	1	618
Wildenbeest. 2023 [80]	Spain, Finland, England, Scotland, the Netherlands	2017/07-2019/12	HICs	PCR	ARI	3	2	145
Ye. 2022 [81]	China, Hangzhou	2019/01-2019/12	UMICs	DFA	RTI	2	1	1220
Zheng. 2020 [82]	China, Sichuan	2018/02-2019/01	UMICs	DFA	RTI	2	1	305
Bouckaert. 2023 [83]	Belgium, Nationwide	2017/01-2018/12	HICs	ICD10	Any RSV disease	2	1	8046
Ferolla. 2019 [84]	Argentina, Buenos Aires	2012/01-2013/12	UMICs	DIF	severe ARTI	12	12	315
Hernandez-Rivas. 2023 [85]	Spain, Madrid	2018/09-2019/04	HICs	Rapid test and/or PCR and/or PCR	Any RSV disease	3	1	299
Morgan. 2023 [86]	South Africa, Cape Town	2012/09-2013/09	UMICs	PCR	ARI	2	1	111
Munoz-Quiles. 2023 [87]	Spain, Valencia	2009/01-2015/12	HICs	ICD 9/10	RSV-bronchiolitis	12	12	5674
SHICshijo. 2023 [88]	Japan, Tokushima Prefe cture	2018/01-2019/12	HICs	Rapid antigen test	Any RSV disease	12	12	292
Buchan. 2023[89]	Canada, Ontario	2009/05-2015/06	HICs	PCR, culture, or DFA or ICD10	Any RSV disease	6	6	8937

NK=not known; HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs= Low-income countries;

PCR=polymerase chain reaction; DFA=direct immunofluorescence assay; IFA=indirect immunofluorescence assay; ELISA=an enzyme-linked immunosorbent assay;

FA=immunofluorescence assay; IF= immunofluorescence; ARI=Acute respiratory infections; ALRI=Acute lower respiratory infections; LRTI=Lower respiratory tract infections; RTI= Respiratory tract infections; SARI= Severe acute respiratory infections

* According to World Bank country income classification for the median year of study.

Supplementary Table 5. Summary of studies identified through re-screening our previously published global analysis [90,91]

Study ID	Reference	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
U0131	Polack and colleagues	Argentina, Buenos Aires	2011/01-2013/12	UMICs	PCR	ALRI	5	5	1826
U0151	Oliveira and colleagues	Brazil, Belo Horizonte	2011/01-2013/12	UMICs	PCR	ALRI	5	5	281
U0161	Fasce and colleagues	Chile, Concepcion	2012/01-2013/12	HICs	IF	SARI	5	5	151
U0171	Fasce and colleagues	Chile, Iquique	2012/01-2013/12	HICs	IF	SARI	4	3	192
U0181	Yu and colleagues	China, Jingzhou	2010/01-2012/12	UMICs	PCR	ALRI	5	5	899
U0211	McCracken and colleagues	Guatemala, Santa Rosa	2008/01-2013/12	LMICs	PCR	ALRI	5	5	413
U0221	McCracken and colleagues	Guatemala, Quetzaltenango	2009/01-2013/12	LMICs	PCR	ALRI	5	5	556
U0251	Gessner and colleagues	Indonesia, Lombok	2000/01-2002/12	LICs	EIA	ALRI	5	5	617
U0321	Jara and colleagues	Panama, David City	2011/01-2013/12	UMICs	IFA, PCR	ALRI	5	5	145
U0341	Cohen and colleagues	South Africa, Gauteng province	2009/01-2012/12	UMICs	PCR	ALRI	5	5	2713
U0371	Madhi and colleagues	South Africa, Soweto	1998/03-2005/10	LMICs	IF	ALRI	5	5	692
U0391	Thamthitiwat and colleagues	Thailand, Sa Kaeo and Nakhon Phanom	2008/01-2011/12	UMICs	PCR	ALRI	5	5	950

Study ID	Reference	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
U0411	Singleton and colleagues	United States, Alaska	2004/07-2012/06	HICs	EIA, DFA, culture	ALRI	5	5	436
U0421	Simoes and colleagues	United States, Colorado	2008/01-2013/01	HICs	PCR	ALRI	5	5	7283
U0441	O'Brien and colleagues	United States, Arizona	1997/10-2000/03	HICs	EIA	ALRI	5	5	664
U0541	Yu and colleagues	China, Nationwide	2009/01-2013/09	UMICs	PCR	ALRI	5	5	2326
U0631	Khuri-Bulos and colleagues	Jordan, Amman	2010/03-2013/03	UMICs	PCR	ALRI	5	5	1187
U0671	Ali and colleagues	Pakistan, Karachi	2009/08-2012/07	LMICs	PCR	ALRI	5	5	146
U0751	Lupisan and colleagues	Philippines, Tacloban	2008/05-2012/07	LMICs	PCR, virus isolation, culture, serology	ALRI	5	5	262
U0761	Cohen and colleagues	South Africa, Mpumalanga	2010/01-2014/01	UMICs	PCR	ALRI	5	5	189
U1011	Wang and colleagues	United Kingdom, Scotland	2009/01-2016/12	HICs	Multiple	ALRI	5	5	9005
U1211	Moore and colleagues	Australia, Western Australia	2000/01-2012/12	HICs	immunofluorescence, viral culture, PCR	ALRI	5	5	5587
U1741	Cohen Mira and colleagues	South Africa, Piertermaritzburg	2011/01-2016/12	UMICs	PCR	ALRI	5	5	441
U1851	Do and colleagues	Australia, Melbourne	2017/08-2019/06	HICs	PCR	SARI	5	5	465

Study ID	Reference	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
U2411	Seo and colleagues	Korea, Rep Goyang-si	2010/01-2019/12	HICs	PCR	ALRI	5	5	663
U2441	Baibus and colleagues	Russian Federation, Six cities	2012/10-2019/09	UMICs	NK	SARI	5	5	143
U2551	Cohen and colleagues	South Africa, Klerksdorp	2011/01-2016/12	UMICs	PCR	ALRI	5	5	193

NK=not known; HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs= Low-income countries; PCR=polymerase chain reaction; DFA=direct immunofluorescence assay; IFA=indirect immunofluorescence assay; ELISA=an enzyme-linked immunosorbent assay; FA=immunofluorescence assay; IF= immunofluorescence; ARI=Acute respiratory infections; ALRI=Acute lower respiratory infections; LRTI=Lower respiratory tract infections; RTI= Respiratory tract infections; SARI= Severe acute respiratory infections

* According to World Bank country income classification for the median year of study.

Supplementary Table 6. Summary of unpublished studies shared by Respiratory Virus Global Epidemiology Network

Study ID	Reference	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
D0621	Rath and colleagues	Germany, Berlin	2009/12-2015/04	HICs	PCR	ALRI	12	12	464
D1061	Heikkinen and colleagues	Finland, Turku	2007/01-2019/12	HICs	Antigen detection or PCR	ALRI	12	12	792
D1531	Katama and colleagues	Kenya, Kilifi	2010/01-2019/12	LMICs	multiple	ALRI	12	12	1369
D1711	Romero and colleagues	Peru, Lima, Iquitos	2017/08-2018/07	UMICs	PCR	ALRI	12	12	134
D1801	Keck and colleagues	United States, Alaska	2013/07-2019/06	HICs	PCR	ALRI	12	12	265
D2001	Yung and colleagues	Singapore, Singapore city	2005/01-2015/12	HICs	PCR or DFA	ALRI	12	12	6361
D2002	Yung and colleagues	Singapore, Singapore city	2018/01-2019/12	HICs	PCR	ALRI	12	12	937
D2041	Giorgi and colleagues	Georgia, Nationwide	2016/01-2019/12	UMICs	PCR	SARI	12	12	276
D2161	Casalegno and colleagues	France, Lyon	2013/01-2019/12	HICs	PCR or culture	ALRI	12	12	2948
D2231	Huang and colleagues	New Zealand, Auckland	2012/05-2017/04	HICs	PCR	ALRI	12	12	1706
D2232	Huang and colleagues	New Zealand, Auckland	2012/05-2019/09	HICs	PCR	ALRI	12	12	2285
D2311	Bandeiraand colleagues	Portugal, Lisbon	2017/01-2019/12	HICs	Antigen testing or PCR	ALRI	12	12	324
D2371	Markic and colleagues	Croatia, Split	2015/01-2019/12	HICs	Antigen test	ALRI	12	12	317

Study ID	Reference	Location	Study period	Income*	Testing method(s)	Case definition	Number of age groups (<1y)	Number of age groups (width of ≤3 months)	Sample size
D2581	Nair and colleagues	United Kingdom, England	2017/01-2019/12	HICs	ICD10	Any RSV disease	12	12	6480
D2591	Wang and colleagues	China, Zhengzhou	2018/12-2019/11	UMICs	PCR	ALRI	12	12	285
D2601	Caballero and colleagues	Argentina, Buenos Aires	2018/01-2019/12	UMICs	PCR	ALRI	12	12	3369
D2611	Fasce and colleagues	Chile, Concepcion	2014/01-2019/12	HICs	IF	SARI	12	12	864
D2621	Fasce and colleagues	Chile, Iquique	2014/01-2019/12	HICs	IF	SARI	12	12	574
D2641	Moyes and colleagues	South Africa, Nationwide	2010/01-2019/12	UMICs	PCR	ALRI	12	12	4527
D2651	Moore and colleagues	Australia, Western Australia	2013/01-2019/12	HICs	Immunofluorescence, viral culture, PCR	ALRI	12	12	3271

NK=not known; HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs= Low-income countries; PCR=polymerase chain reaction; DFA=direct immunofluorescence assay; IFA=indirect immunofluorescence assay; ELISA=an enzyme-linked immunosorbent assay; FA=immunofluorescence assay; IF= immunofluorescence; ARI=Acute respiratory infections; ALRI=Acute lower respiratory infections; LRTI=Lower respiratory tract infections; RTI= Respiratory tract infections; SARI= Severe acute respiratory infections

* According to World Bank country income classification for the median year of study.

Supplementary Table 7. Model-predicted cumulative proportion of RSV hospitalisations in the first six month of life in different groups

Group	6-month cumulative proportion (95% credible interval)
HICs	0.756 (0.745-0.766)
UMICs	0.703 (0.687-0.721)
LMICs/LICs	0.644 (0.615-0.675)
Temperate region	0.749 (0.74-0.759)
Sub-tropical region	0.733 (0.714-0.751)
Tropical region	0.633 (0.604-0.661)
HICs in Temperate region	0.762 (0.751-0.773)
HICs in Sub-tropical region	0.728 (0.697-0.759)
HICs in Tropical region	0.651 (0.583-0.721)
UMICs in Temperate region	0.684 (0.657-0.71)
UMICs in Su-btropical region	0.749 (0.722-0.775)
UMICs in Tropical region	0.618 (0.56-0.674)
LMICs/LICs in Tropical region	0.643 (0.605-0.678)

HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs= Low-income countries.

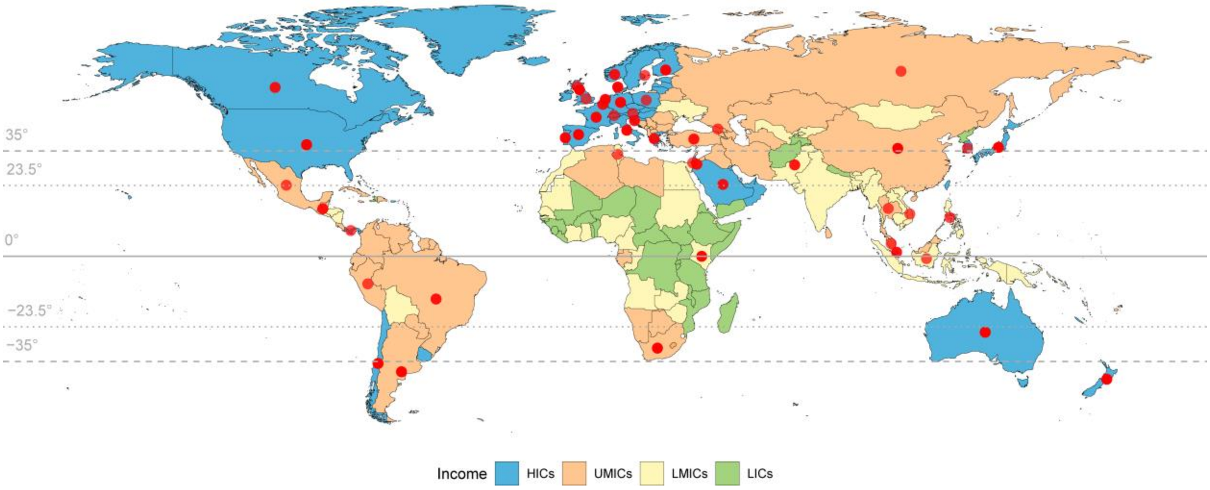
Supplementary Table 8. The risk ratios between the birth month with the highest cumulative proportion of RSV hospitalisations and the birth month with the lowest cumulative proportion of RSV hospitalisations.

Country	Ratios of highest to lowest cumulative proportion of RSV hospitalizations in the first 6 months of life (95% prediction interval)	Ratios of highest to lowest cumulative proportion of RSV hospitalizations in the first year of life (95% prediction interval)
Temperate region	24.58 (3.1-42.67)	3.13 (1.62-3.58)
Canada	20.89 (19.61-22.26)	3.06 (2.9-3.23)
Chile	24.71 (21.46-28.15)	3.31 (3.11-3.56)
China	3.18 (2.95-3.44)	1.65 (1.57-1.73)
Denmark	41.03 (37.2-45.16)	3.46 (3.24-3.69)
Finland	12.76 (12.01-13.66)	2.66 (2.53-2.79)
Georgia	27.82 (18.22-45.07)	2.69 (2.43-2.99)
Japan	4 (3.77-4.22)	2 (1.91-2.08)
Netherlands	31.67 (27.87-36.08)	3.38 (3.18-3.62)
New Zealand	25.24 (23.38-27.4)	3.4 (3.19-3.63)
Norway	27.18 (24.7-30.19)	3.23 (3.05-3.45)
Sub-tropical region	16.53 (5.34-70.88)	2.62 (1.68-3.73)
Egypt	8.49 (7.04-10.54)	1.79 (1.59-2.08)
Jordan	43.09 (30.33-64.73)	3.2 (2.86-3.63)
Kwait	16.65 (8.79-35.47)	3.38 (2.85-3.93)
Mexico	5.9 (4.76-7.49)	1.91 (1.75-2.09)
Morocco	44.54 (20.74-116.79)	2.62 (2.14-3.36)
South Africa	7.07 (6.42-7.79)	2.1 (1.97-2.26)
Uruguay	25.43 (18.52-36.08)	3.49 (3.21-3.79)
Tropical region	4.24 (1.72-12.34)	1.77 (1.25-2.63)
Colombia	2.13 (2.02-2.24)	1.42 (1.38-1.47)
Costa Rica	3.83 (3.52-4.19)	1.72 (1.63-1.82)
Cuba	10.35 (9.21-11.72)	2.57 (2.35-2.82)
Dominican Republic	4.56 (3.73-5.54)	1.83 (1.7-2.01)
Ecuador	10.11 (8.84-11.58)	2.23 (2.07-2.43)
El Salvador	4.22 (3.73-4.82)	1.58 (1.44-1.79)
Guatemala	3.32 (3.02-3.63)	1.7 (1.61-1.81)
Honduras	4.46 (3.89-5.11)	1.71 (1.53-1.94)
Nicaragua	11.81 (9.06-16.02)	1.85 (1.64-2.13)

Oman	3.13 (2.58-3.78)	1.74 (1.6-1.89)
Panama	9.67 (8.75-10.7)	2.53 (2.41-2.65)
Paraguay	10.66 (9.63-11.9)	2.32 (2.15-2.53)
Peru	5.37 (4.78-6.09)	1.94 (1.81-2.08)
Suriname	2.19 (1.69-2.85)	1.4 (1.26-1.55)
Venezuela	3.19 (2.61-4.04)	1.81 (1.63-2.06)
Yemen	1.79 (1.45-2.26)	1.27 (1.16-1.4)

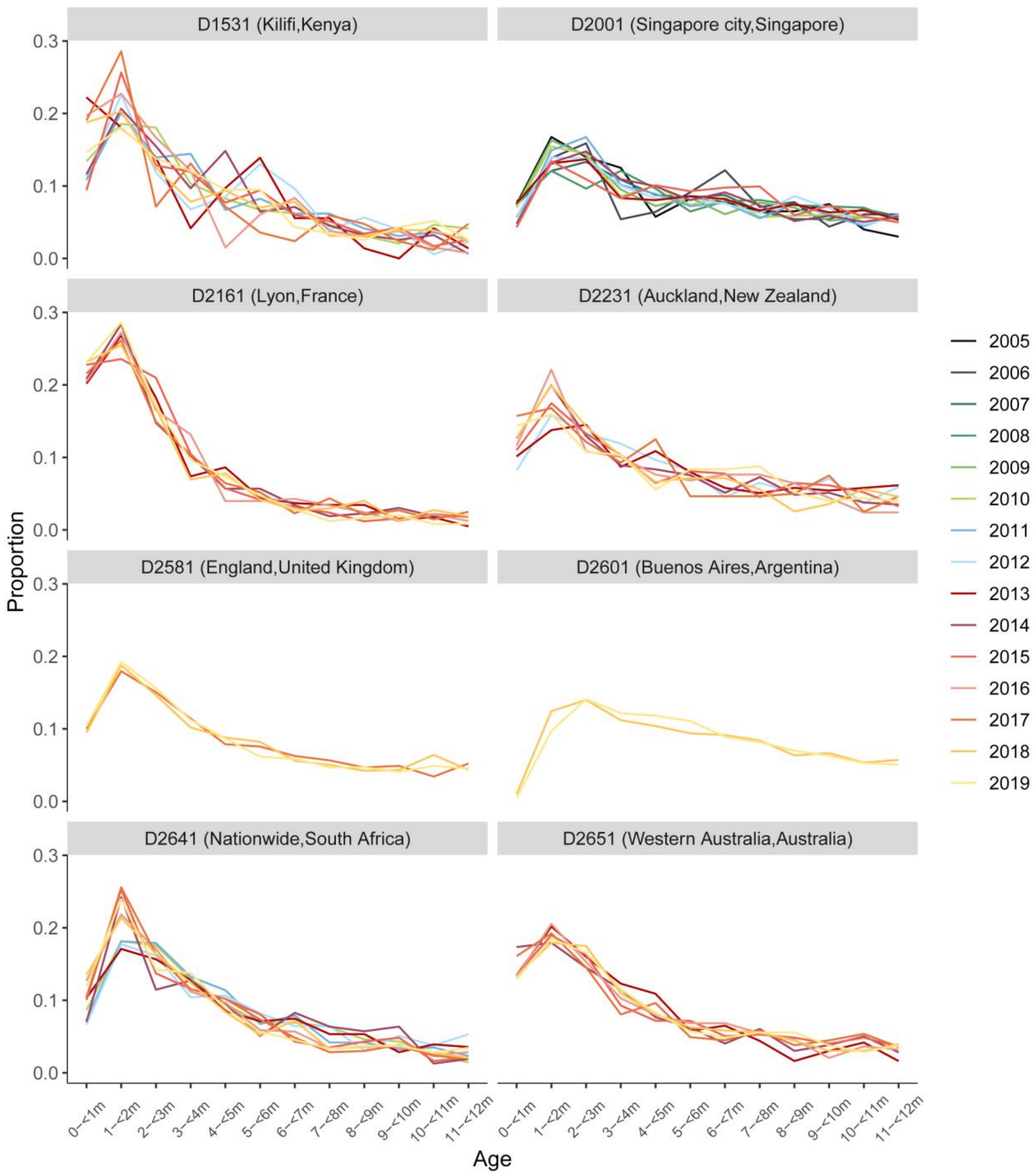
Supplementary Figures

Supplementary Figure 1. World map showing included countries with data on RSV hospitalisations

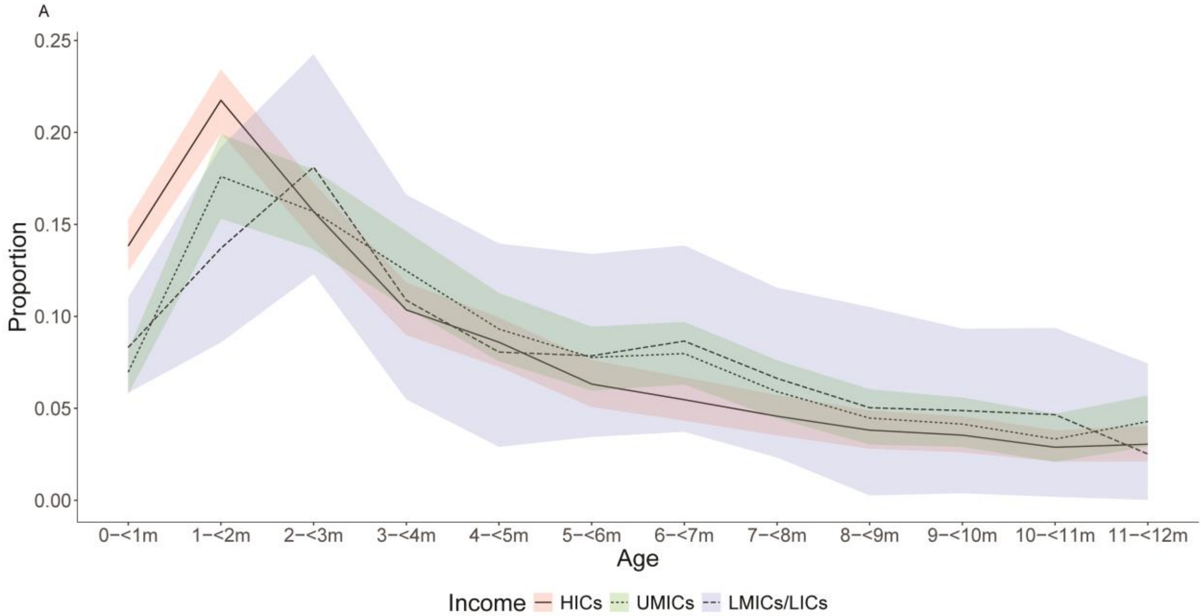


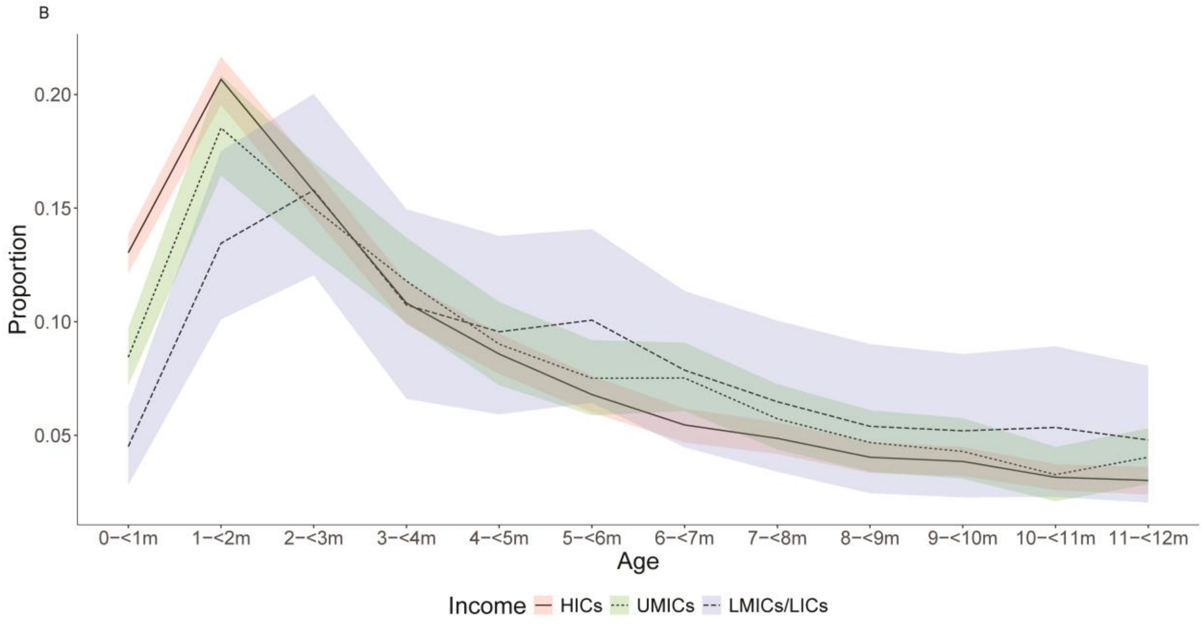
The red points indicate countries included (n=49 countries). HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs=Low-income countries, according to World Bank country income classification in 2019.

Supplementary Figure 2. Proportion of RSV hospitalisations by month of age in the first year of life among different years



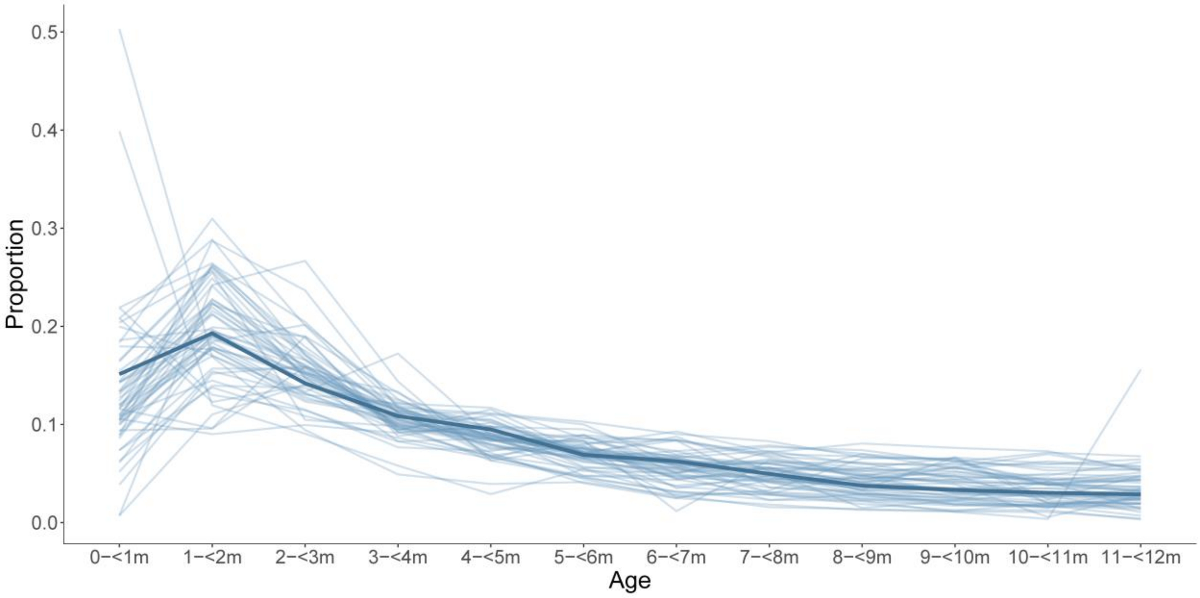
Supplementary Figure 3. Model-predicted proportion of RSV hospitalisations by month of age in the first year of life among different income countries when only include studies (A) with testing method include PCR and (B) with "Good" or "Very good" quality





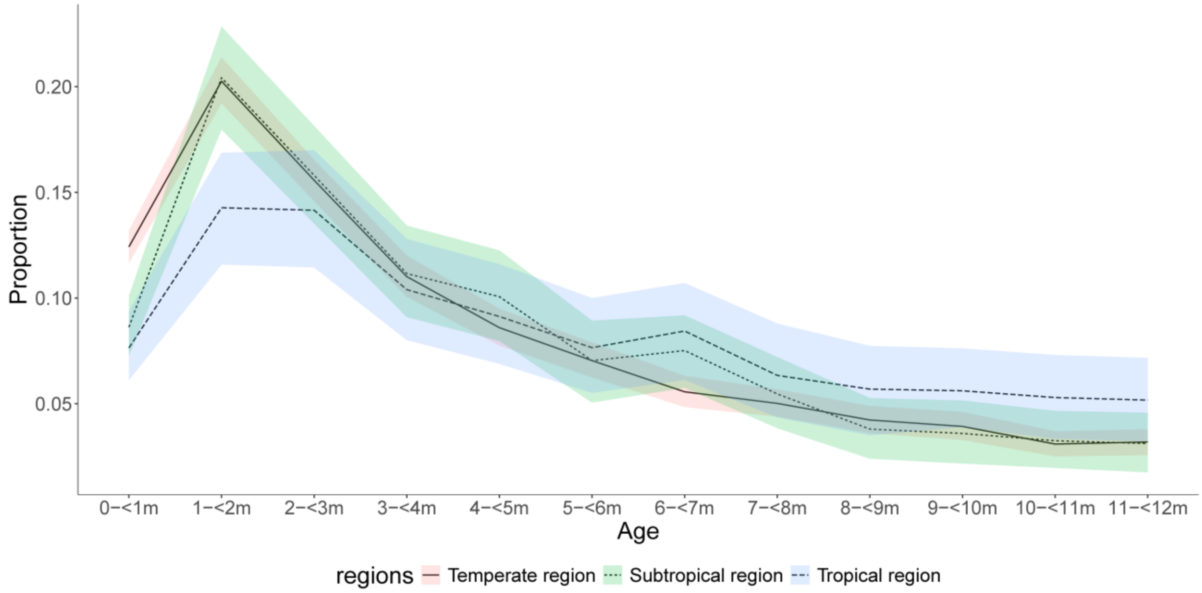
Lines indicate the medians and shaded sections indicate 95% credible intervals. HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs=Low-income countries.

Supplementary Figure 4. Description of age distribution of RSV hospitalisations in 54 studies that had available data for each month of age.



The light lines indicate the reported proportion of RSV hospitalisations by each individual study, and the dark line denotes the combined proportion of RSV hospitalisations by month of age totalled across individual studies.

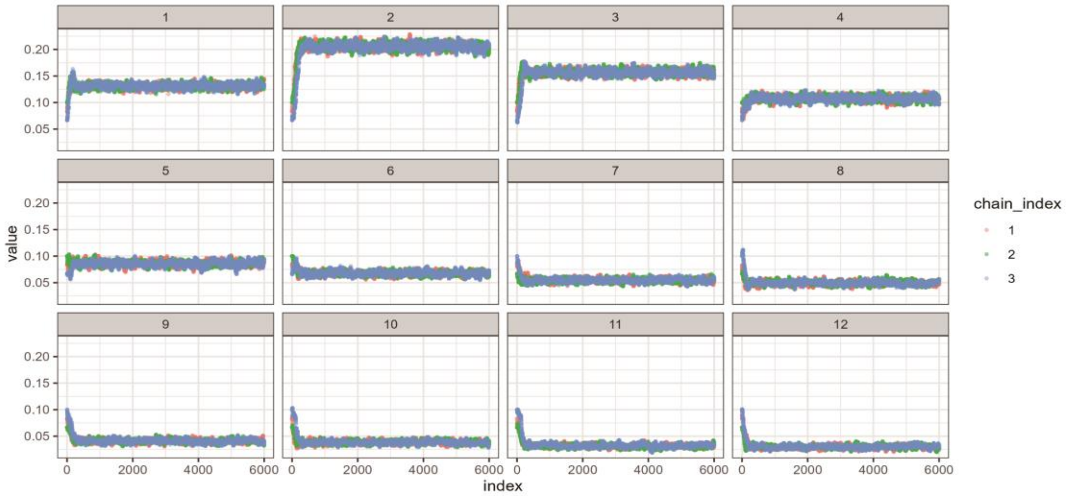
Supplementary Figure 5. Model-predicted proportion of RSV hospitalisations by month of age in the first year of life among different latitudinal groups



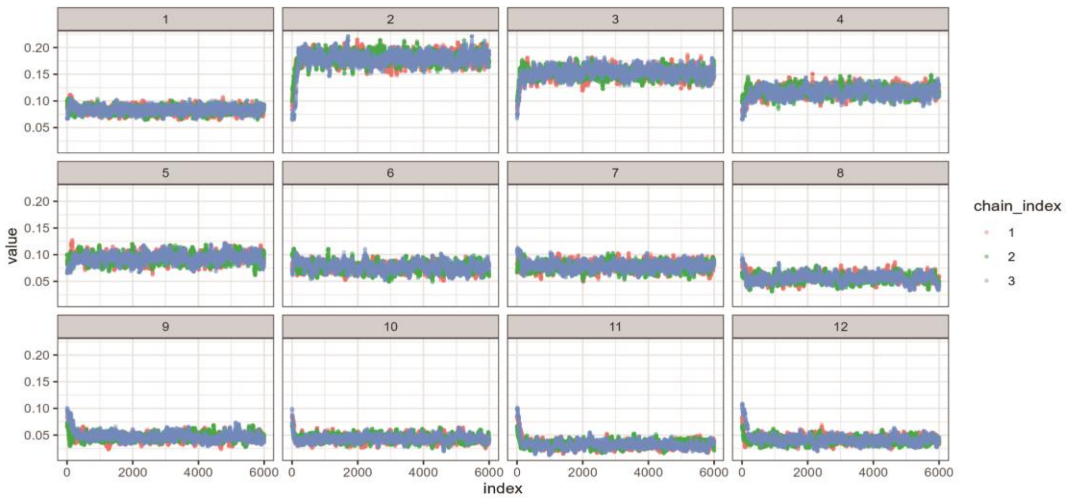
Lines indicate the medians and shaded sections indicate 95% credible intervals.

Supplementary Figure 6. Trace plots of convergence monitoring in (A) high-income countries, (B) upper-middle-income countries and (C) lower-middle-income countries/low-income countries

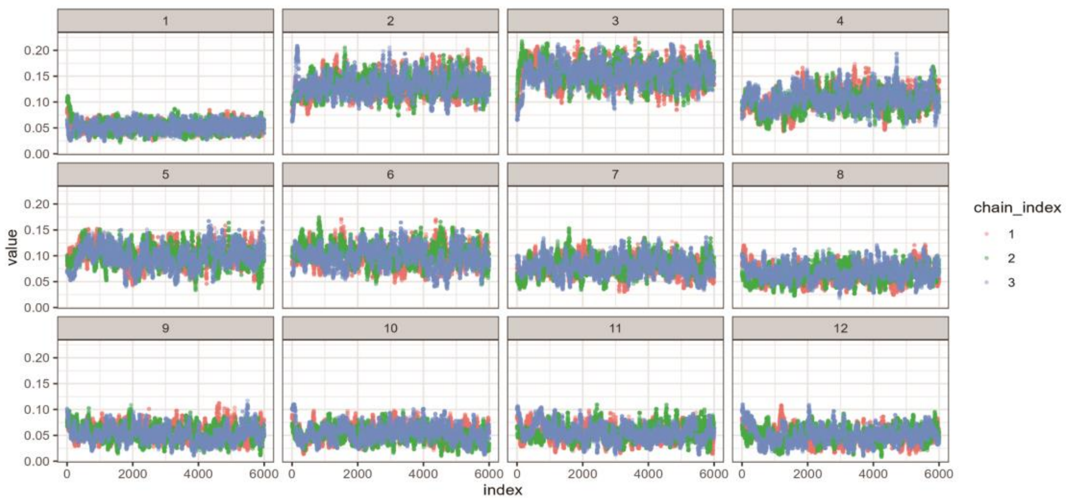
A



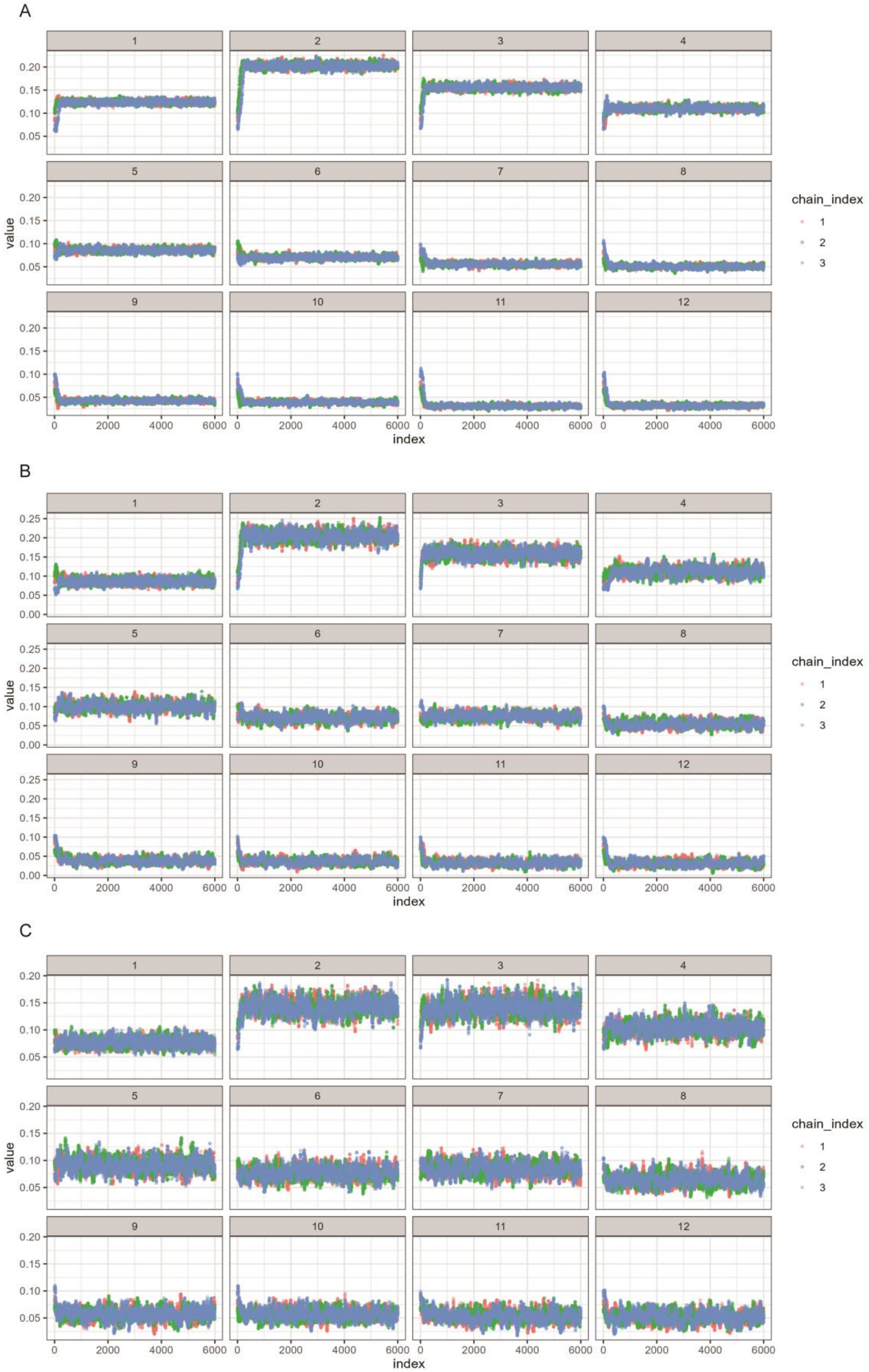
B



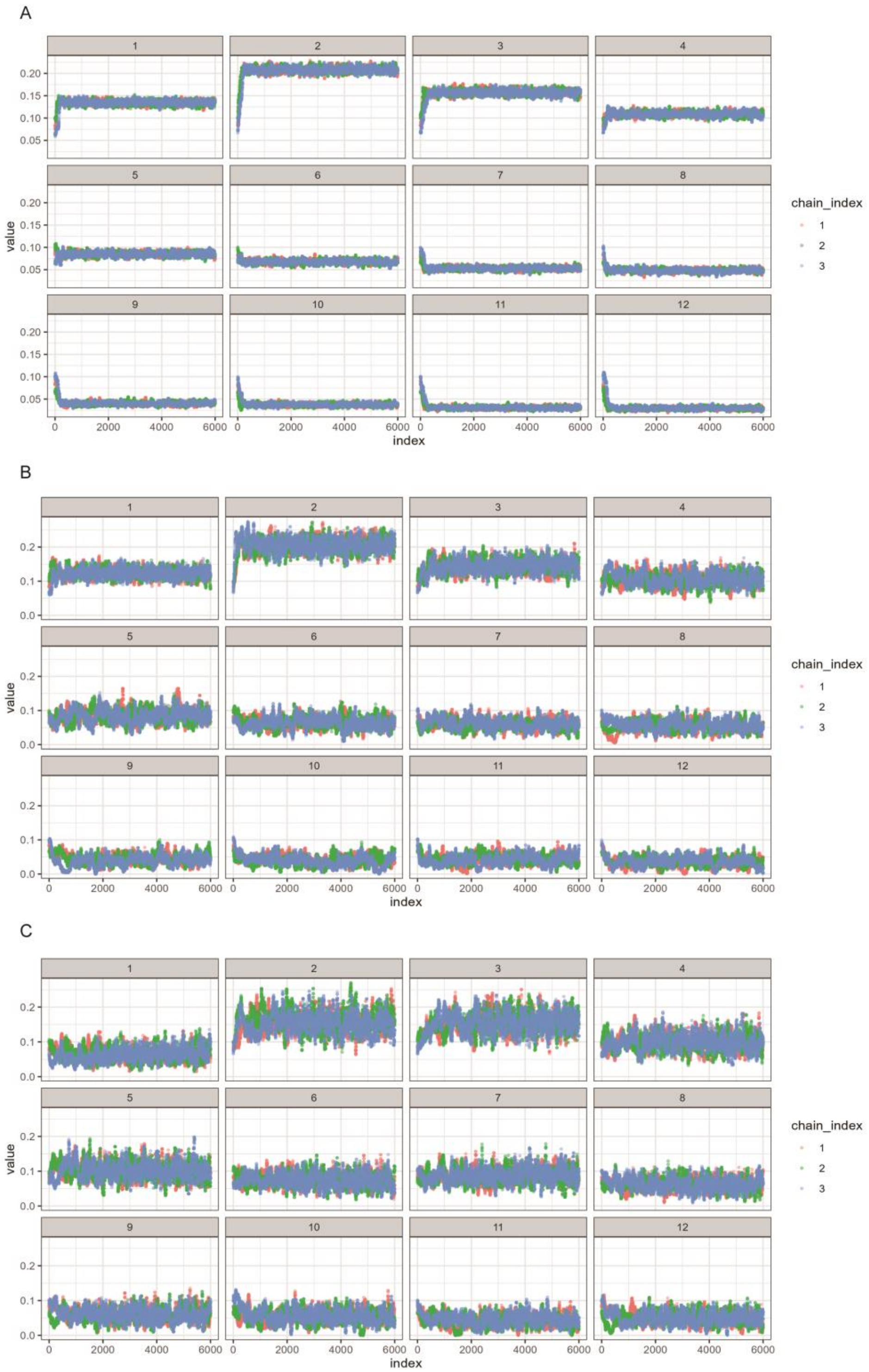
C



Supplementary Figure 7. Trace plots of convergence monitoring in (A) temperate region, (B) sub-tropical region and (C) tropical region



Supplementary Figure 8. Trace plots of convergence monitoring in (A) HICs in temperate regions, (B) HICs in sub-tropical regions, (C) HICs in tropical regions, (D) UMICs in temperate regions, (E) UMICs in sub-tropical regions, (F) UMICs in tropical regions, (G) LMICs/LICs in temperate regions, (H) LMICs/LICs in sub-tropical regions, (I) LMICs/LICs in tropical regions



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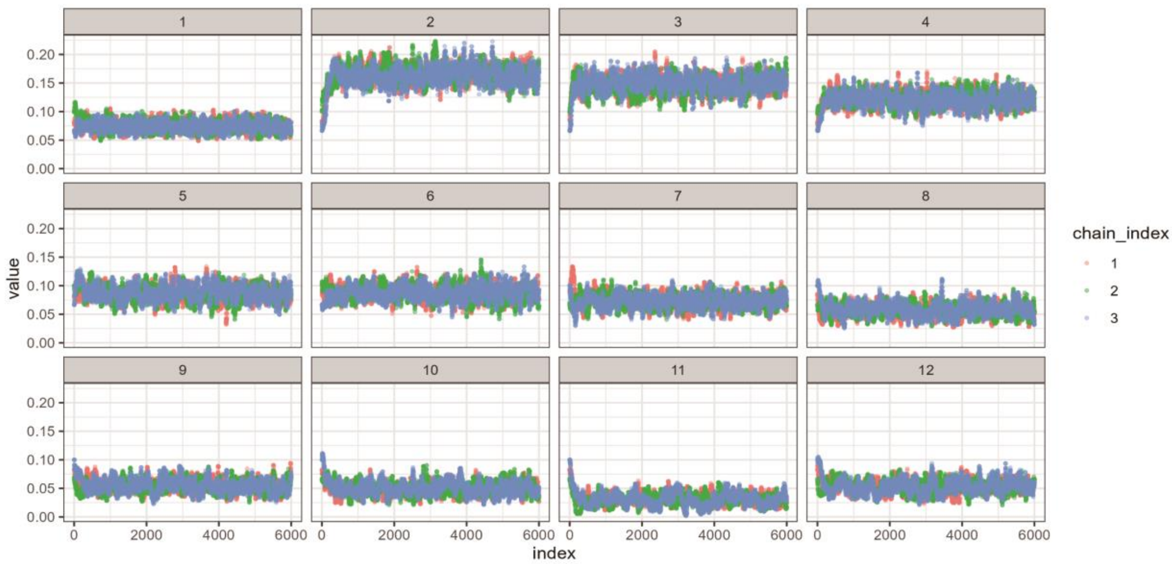
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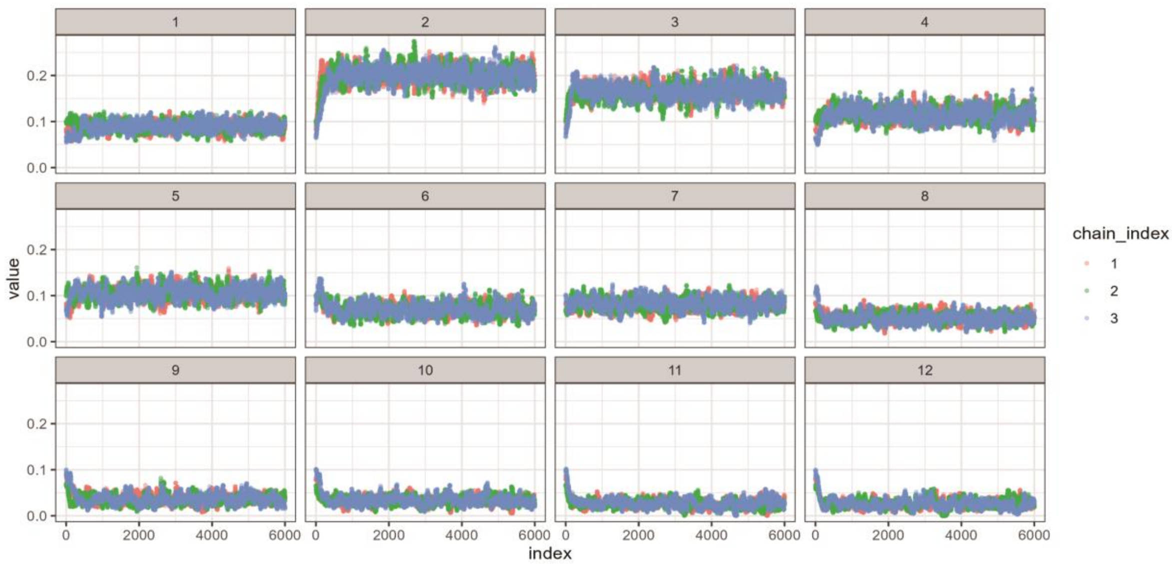
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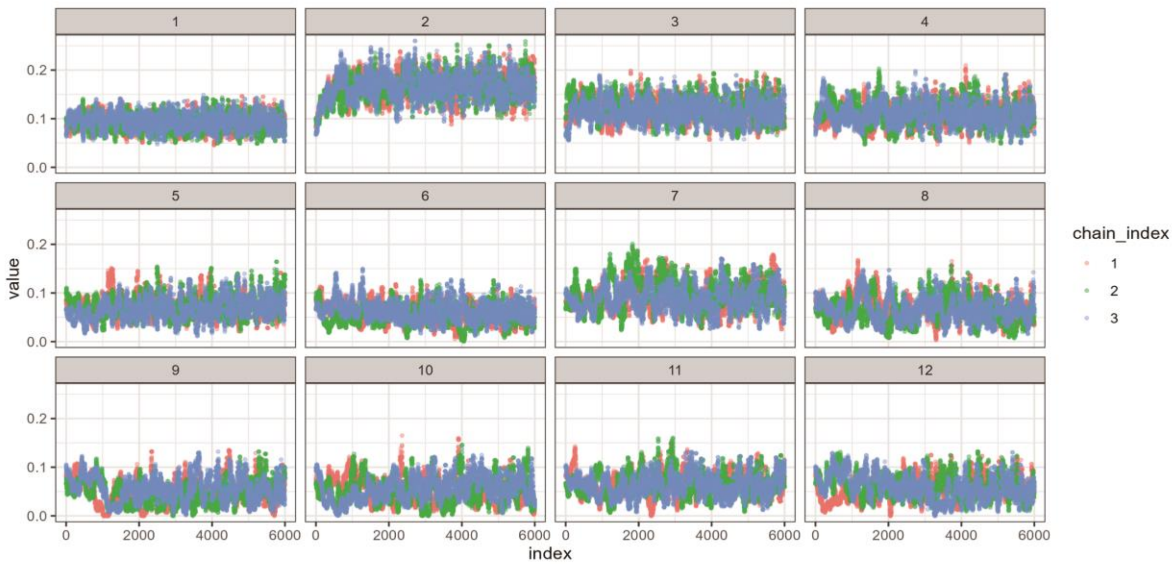
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G (excluded from analysis due to non-convergence)

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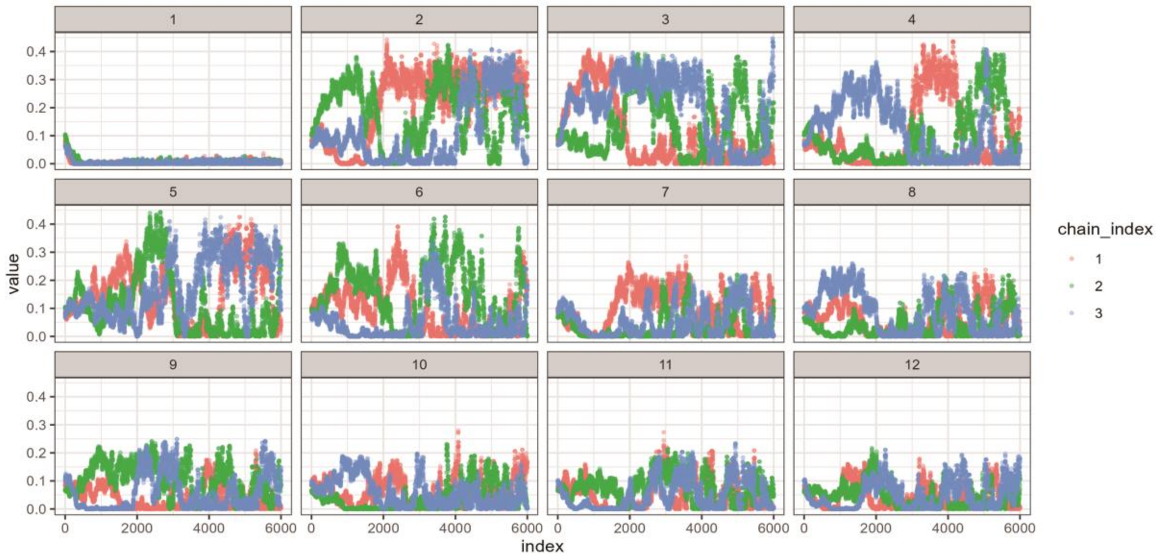

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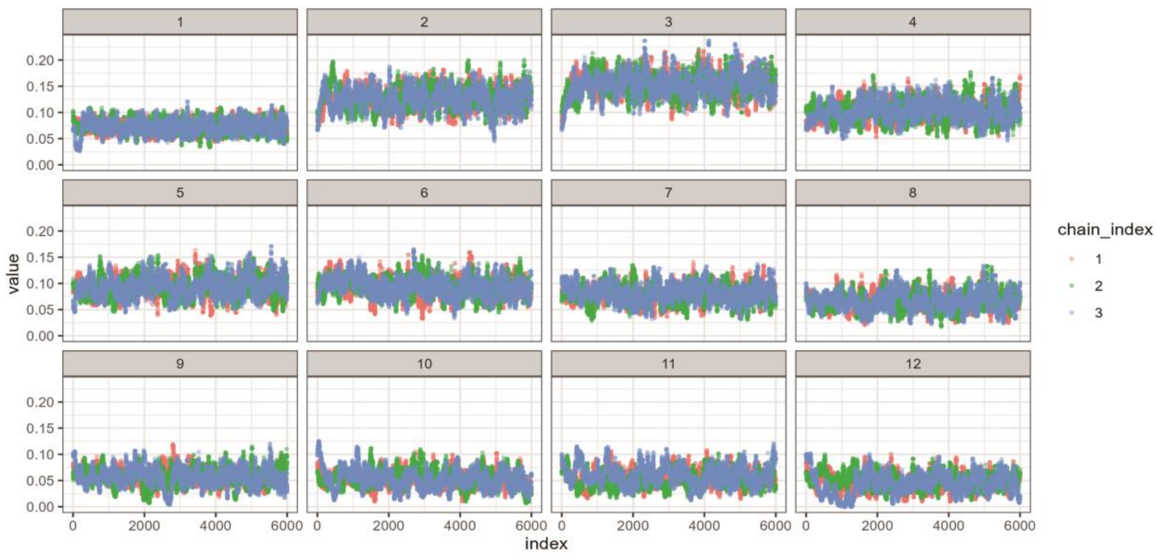
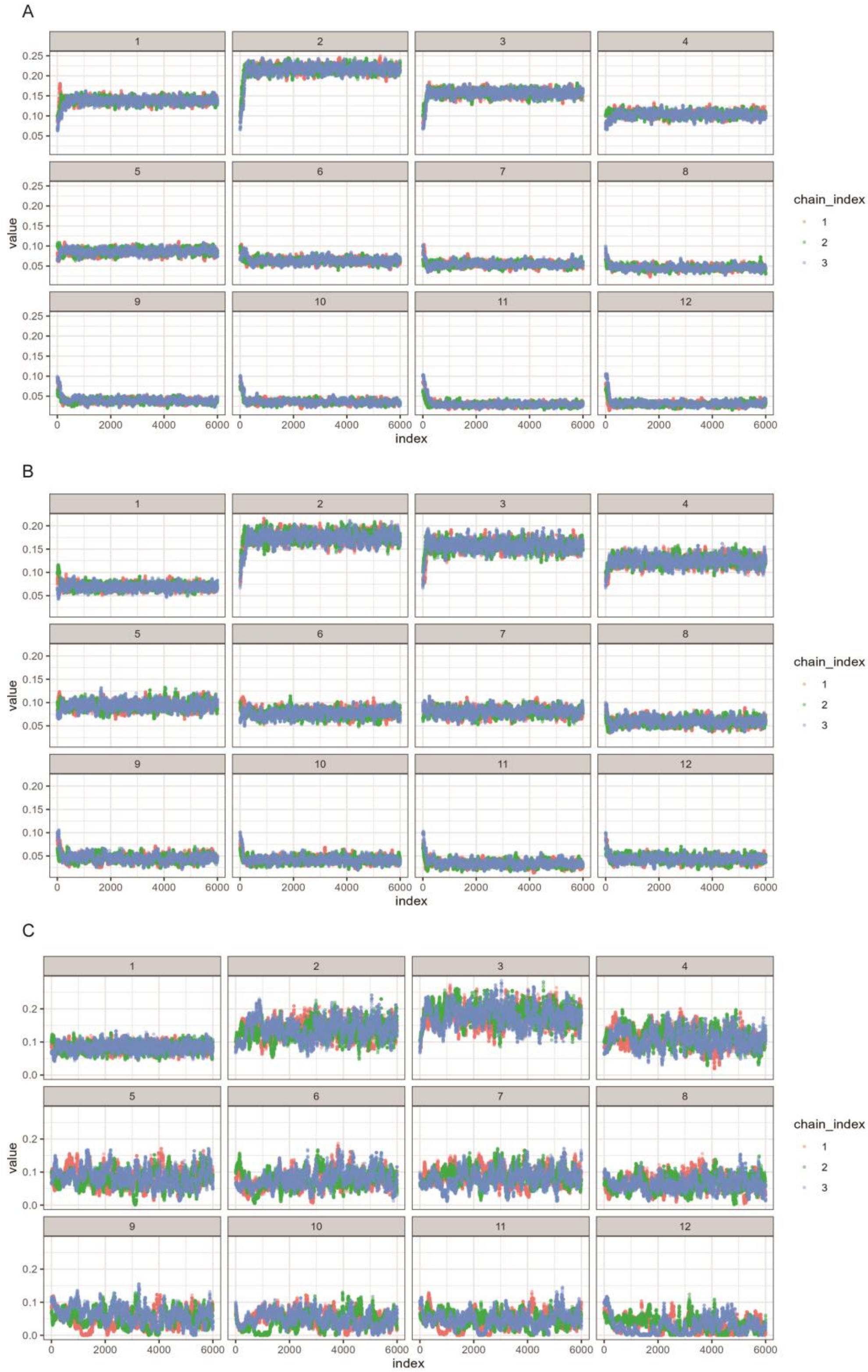
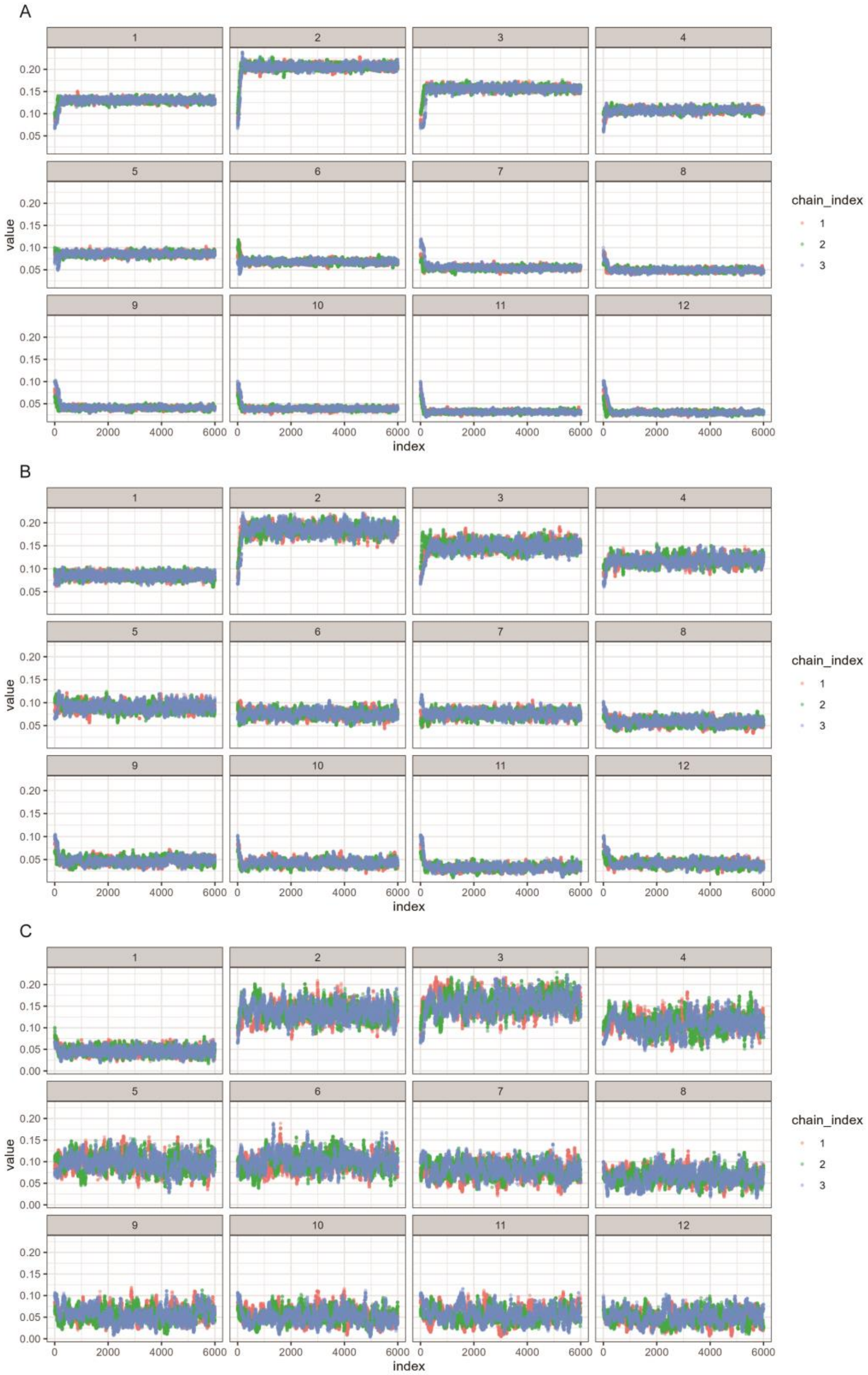


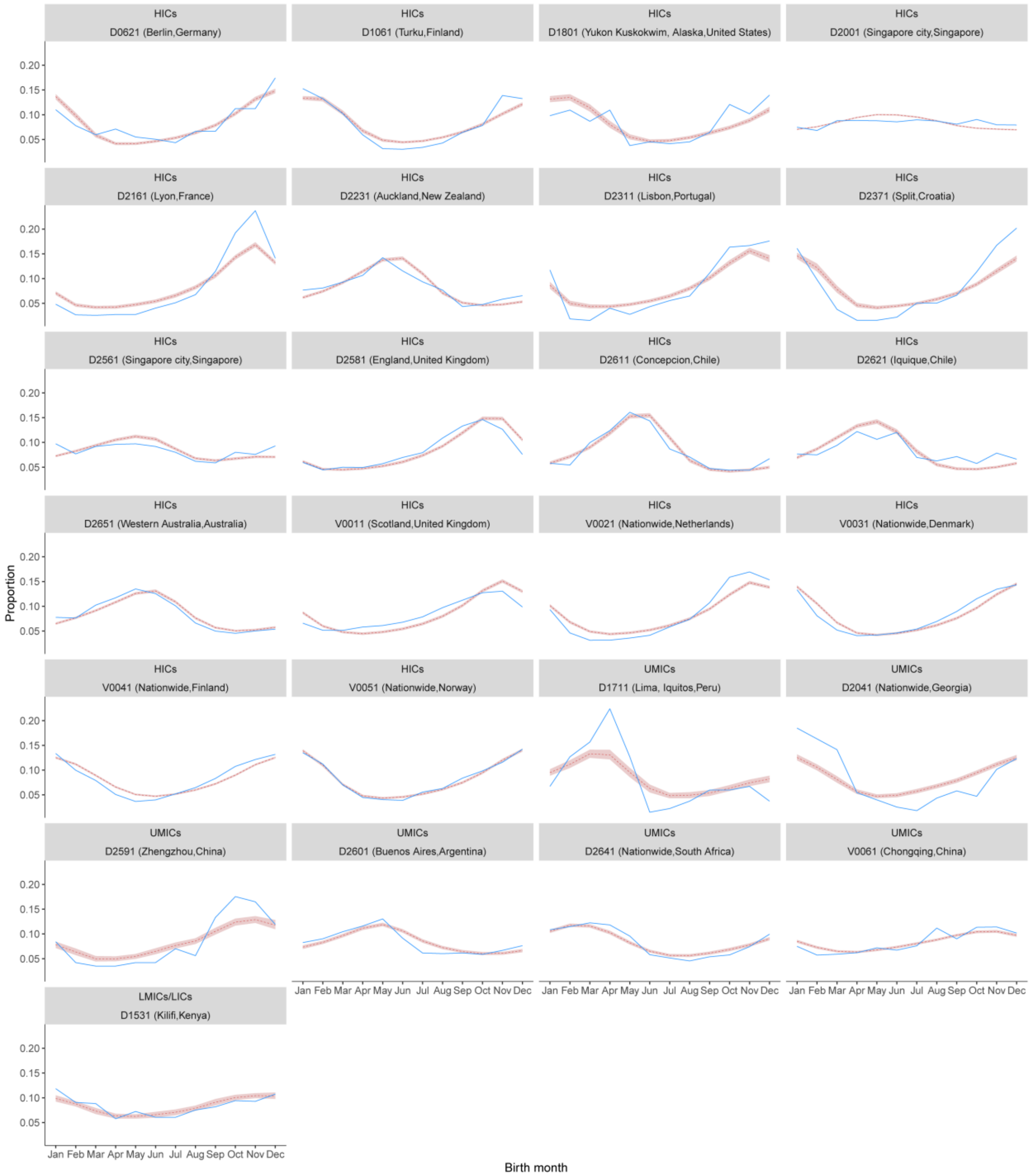
Supplementary Figure 9. Trace plots of convergence monitoring for sensitivity analysis excluded studies that did not confirm RSV infection status with PCR in (A) high-income countries, (B) upper-middle-income countries and (C) lower-middle-income countries/low-income countries



Supplementary Figure 10. Trace plots of convergence monitoring for sensitivity analysis included studies with “Good” or “Very good” quality in (A) high-income countries, (B) upper-middle-income countries and (C) lower-middle-income countries/low-income countries

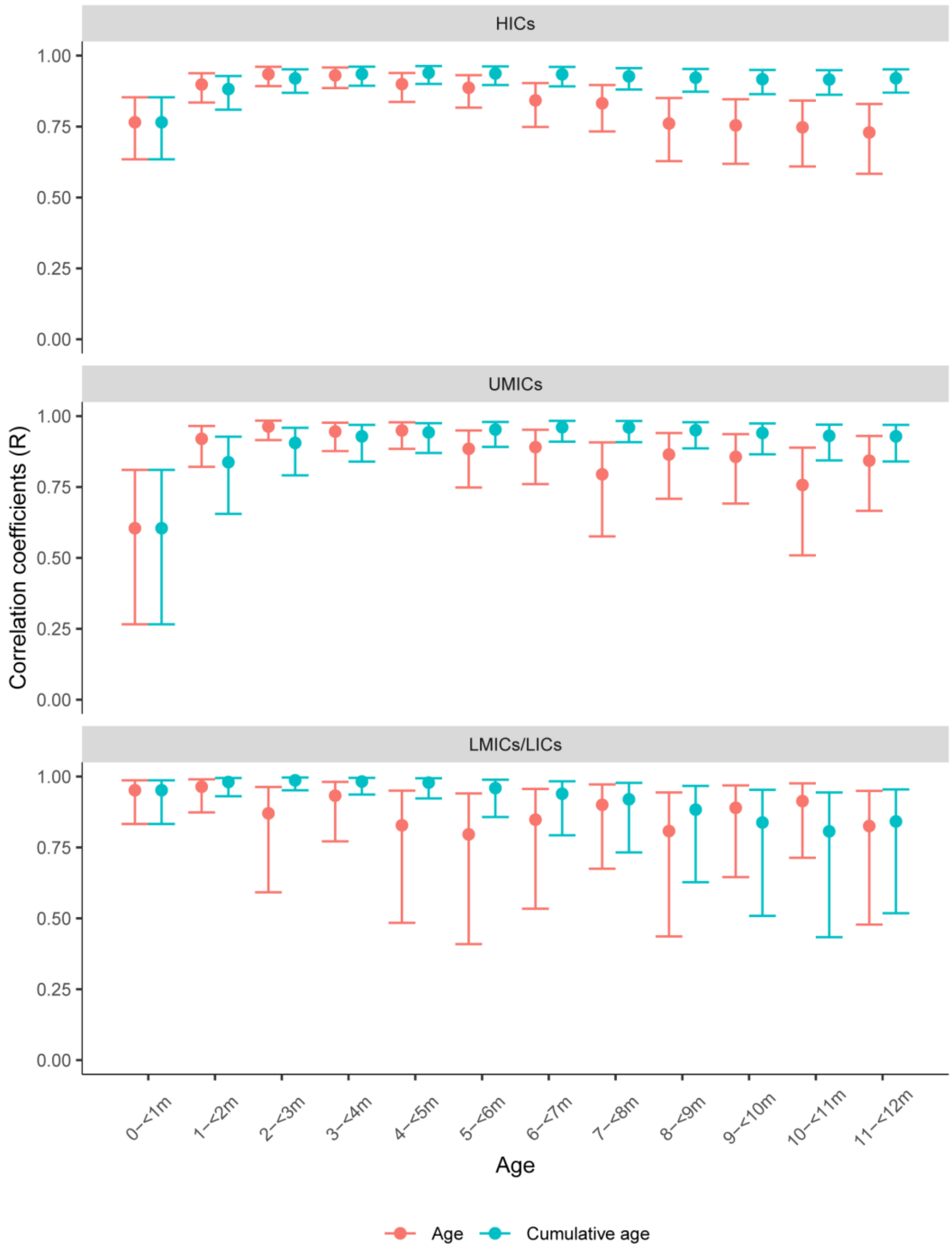


Supplementary Figure 11. Visual comparison between the model-predictions and observed cumulative proportion of RSV hospitalisations in the first year of life by birth month



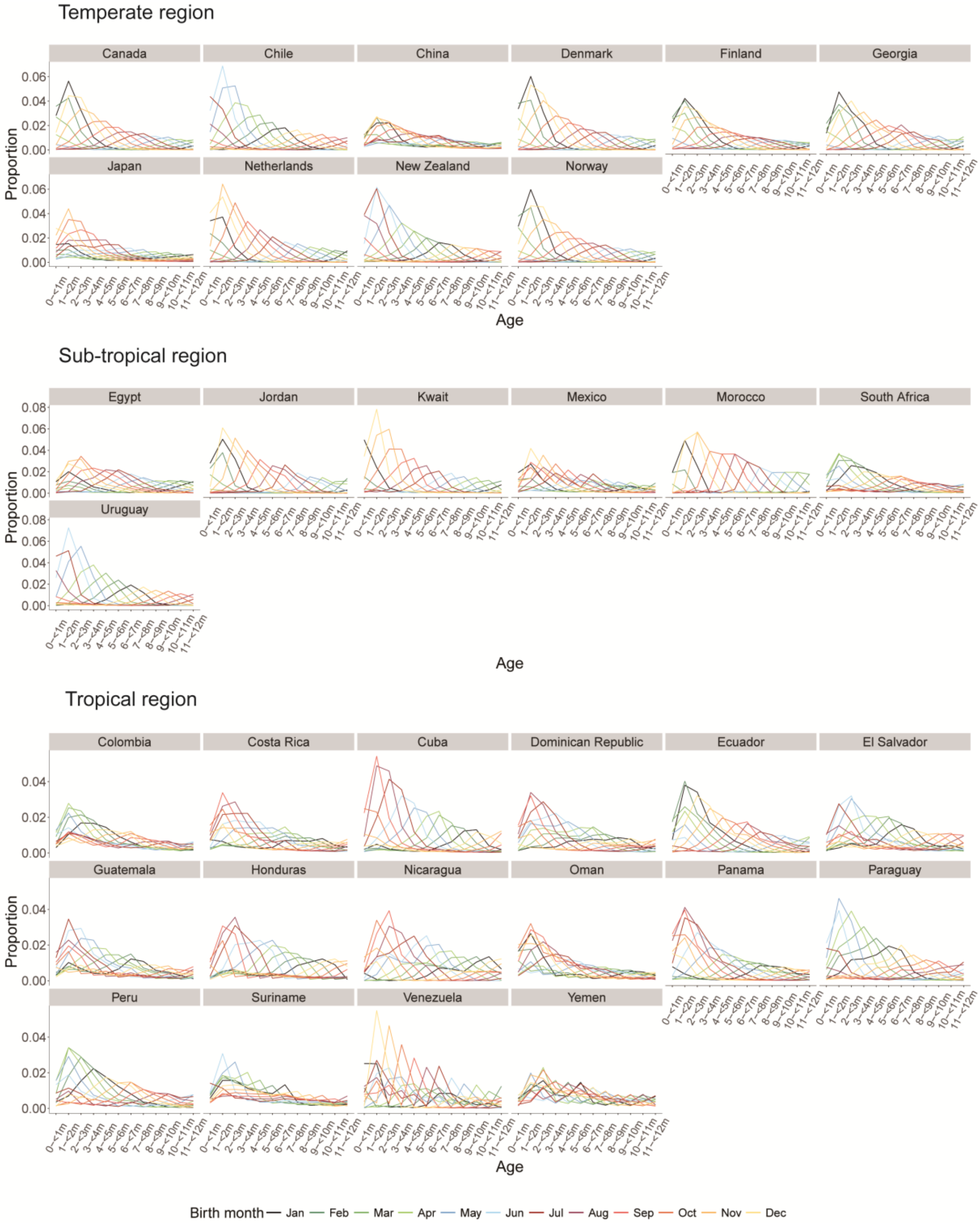
Red indicates the model-predicted cumulative proportion (medians) and 95% prediction intervals; blue indicates the observed cumulative proportion of RSV hospitalisations. HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs=Low-income countries, according to World Bank country income classification in 2019.

Supplementary Figure 12. Pearson's correlation coefficients and 95% confidence intervals (CI) between the model-predicted and the observed proportion and cumulative proportion of RSV hospitalisations by birth month for different months of age



HICs=High-income countries; UMICs=Upper-middle-income countries; LMICs=Lower-middle-income countries; LICs=Low-income countries, according to World Bank country income classification in 2019.

Supplementary Figure 13. Model-predicted month-by-month age distribution of RSV hospitalisations by birth month for different countries.



The lines indicate medians of model-predicted proportion.

Supplementary Methods

Supplementary Methods 1. Search Strategy

Medline (Ovid)

1. exp Respiratory Syncytial Viruses/ or exp Respiratory Syncytial Virus, Human/ or exp Respiratory Syncytial Virus Infections/ or RSV.mp.
2. respiratory syncytial virus*.mp.
3. pneumonia.mp. or exp Pneumonia/ or exp Pneumonia, Viral/
4. bronchiolitis.mp. or exp Bronchiolitis/ or exp Bronchiolitis, Viral/
5. exp Respiratory Tract Infections/ or respiratory infection*.mp.
6. exp Respiratory Tract Diseases/ or respiratory disease*.mp.
7. incidence.mp. or exp Incidence/
8. morbidity.mp. or exp Morbidity/
9. burden.mp.
10. epidemiology.mp. or exp Epidemiology/
11. 1 or 2
12. 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
13. ep.fs.
14. 11 and 12 and 13
15. limit 14 to (yr="1995 -2023" and ("all infant (birth to 23 months)" or "newborn infant (birth to 1 month)" or "infant (1 to 23 months)"))

3047 results on 26-Feb-2024

EMBASE (Ovid)

1. RSV.mp. or exp Respiratory syncytial pneumovirus/ or exp respiratory syncytial virus infection/
2. respiratory syncytial virus*.mp.
3. exp community acquired pneumonia/ or exp pneumonia/ or exp virus pneumonia/ or exp infectious pneumonia/ or pneumonia.mp.
4. bronchiolitis.mp. or exp bronchiolitis/ or exp viral bronchiolitis/
5. exp respiratory tract infection/ or exp lower respiratory tract infection/ or respiratory infection*.mp.
6. exp respiratory tract disease/ or respiratory disease*.mp.
7. exp incidence/ or incidence.mp.
8. morbidity.mp. or exp morbidity/ or exp newborn morbidity/

9. burden.mp.

10. exp epidemiology/ or epidemiology.mp.

11. 1 or 2

12. 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10

13. ep.fs.

14. 11 and 12 and 13

15. limit 14 to (yr="1995 -2023 " and (infant or child))

1408 results on 26-Feb-2024

Global Health (Ovid)

1. RSV.mp.

2. exp human respiratory syncytial virus/

3. respiratory syncytial virus*.mp.

4. exp community acquired pneumonia/ or pneumonia*.mp. or exp pneumonia/

5. bronchiolitis.mp. or exp bronchiolitis/

6. respiratory infection*.mp.

7. exp respiratory diseases/

8. respiratory disease*.mp.

9. incidence.mp. or exp disease incidence/ or exp incidence/

10. morbidity.mp. or exp morbidity/

11. exp epidemiology/ or epidemiology.mp.

12. burden.mp.

13. 1 or 2 or 3

14. 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12

15. infant*.mp. or infants/

16. 13 and 14 and 15

17. limit 16 to yr="1995 -2023"

2409 results on 26-Feb-2024

Wed of Science

TS = (respiratory syncytial virus) AND TS = (epidemiology) AND TS = (infant*)

From 1995 to 2023

800 results on 26-Feb-2024

Supplementary Methods 2. Quality scoring form

Question 1: selection process of study subjects	
0	Only include subjects with special medical history (e.g. subjects whose mothers received C-section) or with special SES (e.g. from slum) that substantially limits generalisation of the findings OR subjects' information not reported.
1	Only include subjects with some characteristics (e.g. rural) that might limit generalisation of the findings.
2	Include all subjects or a systematic sample of all subjects.
Question 2: testing practice	
0	Less than 30% of subjects eligible for testing were tested OR information on testing not available.
1	30%–70% of subjects eligible for testing were tested OR ICD-9/10 codes applied in hospital-based studies.
2	Over 70% of subjects eligible for testing were tested OR a systematic sampling method applied to at least 50% of the subjects.
Question 3: age representation	
0	Age distribution of RSV incidence was very likely to be biased by the imbalanced capacity to recruit/report infants of different months of age. E.g. birth cohort studies that have major loss-to-follow-up issues (>20% of loss to follow up).
1	Age distribution of RSV incidence could be biased by the slightly imbalanced capacity to recruit/report infants of different months of age. E.g. single-hospital studies that could not account for infants who could visit another hospital(s) as they grew older.
2	Age distribution of RSV incidence was unlikely to be biased by the study design. E.g. studies based on nationwide or regional database(s).
Question 4: age group granularity	

0	Only 1-2 age groups in <1y with ≤3 months of width available in the study.
1	3-5 age groups in <1y with ≤3 months of width available in the study.
2	6 or more age groups in <1y with ≤3 months of width available in the study.
Question 5: data accessibility	
0	Data were available only as image and numbers could not be extracted with optimal accuracy but should not bias the overall age distribution results.
1	Data were available as image and numbers could be extracted with fair confidence in accuracy.
2	Data were available as tables, texts, or datasets.
Overall score	Bad: 0-3 points; Fair: 4-5 points; Good: 6-7; Very good: 8-10.

Supplementary Methods 3. Model calibration

The model for estimating proportion of RSV hospitalisation by each month of age is given by the formula below:

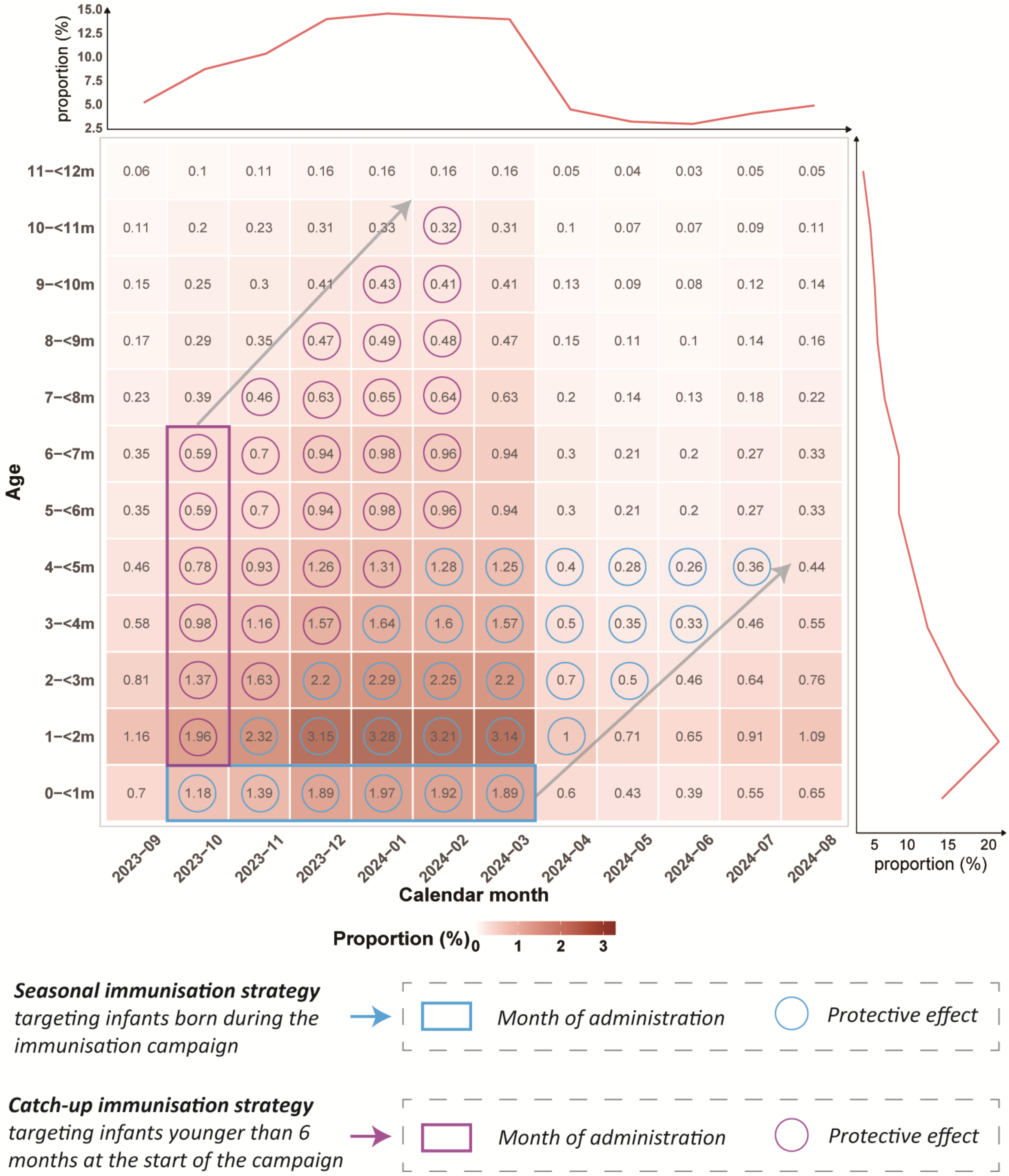
$$\vec{Y_s} \mid (\vec{p}_s, N_s) \sim \text{Multinomial}\ (N_s, \vec{p}_s)$$

$$\vec{p}_s \mid (\alpha, \vec{p}) \sim \text{Dirichlet}(\alpha\, \vec{p}), \alpha > 0, \vec{p} \in [0,1]^{12}, \sum_{m=1}^{12} \vec{p}_m = 1$$

where s denotes each study (from the same stratum of country income); $\vec{p}_s$ denotes the proportion of RSV hospitalisations in each of the 12 months of age for each study, which follows a Dirichlet distribution; $\vec{Y_s}$ and N_s are the RSV hospitalisation counts in each month of age and totally in the first year of life; α, as the concentration parameter of the Dirichlet distribution, represents the heterogeneity among studies within the same country income stratum. Here, α was set to a fixed value of 100, which was informed by a separate Dirichlet regression of a subset of our dataset that had available RSV hospitalisation counts for each month of age. $\vec{p}$ denotes the proportion of RSV hospitalisations in each of the 12 months of age for each stratum of country income, which was the primary parameter of interest.

Model parameters $\vec{p}$ were estimated using the Metropolis–Hasting's algorithm with random sampling from a Dirichlet distribution. Three chains with different initial values were used: in chain 1, all parameters were set to 1/12; in chain 2, the first six parameters (corresponding to 0-<6 months) were each set to 0.1, and the second six parameters (corresponding to 6-<12 months) were set to 0.4/6; in chain 3, the first six parameters were set to 0.4/6, and the second six parameters were set to 0.1. Each chain was iterated 6000 times, of which the first 1000 were removed as burn-in and the remaining 5000 samples were thinned by 10 times to remove autocorrelation amongst the samples, leaving 500 effective samples per chain. Model convergence was assessed by visual inspection of the trace plot for each parameter. The point estimate and 95% credible interval was determined by the median and the 2.5th and 97.5th percentile of the posterior samples.

Supplementary Methods 4. An illustrative example of how the prediction tool may inform RSV immunisation strategy



Supplementary Methods 5. The user manual of the online visualisation tool

Prerequisite: make sure that you have RSV seasonality data (i.e., the number of RSV cases from January to December) and the total number of RSV cases for the 12 months is not less than 100.

Step 1: Go to https://idem.njmu.edu.cn/shiny/RSVbirthmonth/

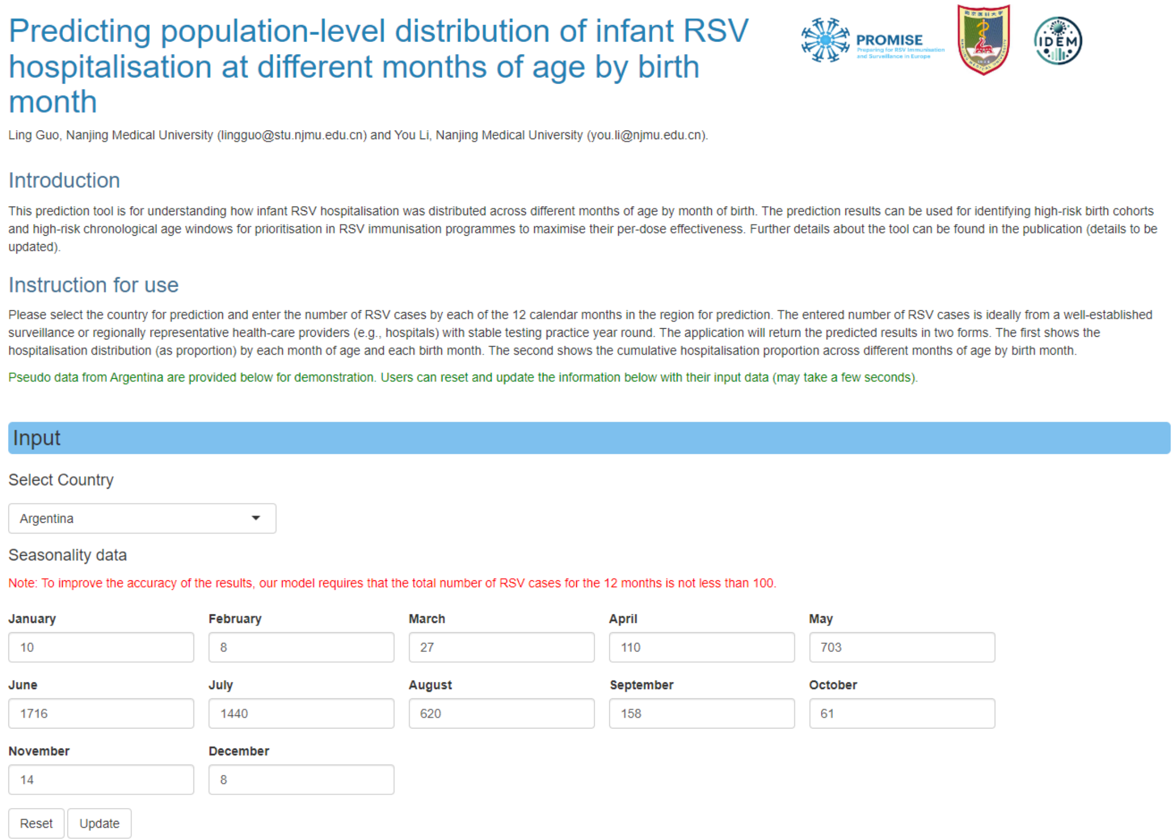
We have an example for Argentina, you can see the form of the output with this example.

Step 2: Click "Reset" and input your RSV seasonality data in the corresponding cells. Make sure no cells are left blank.

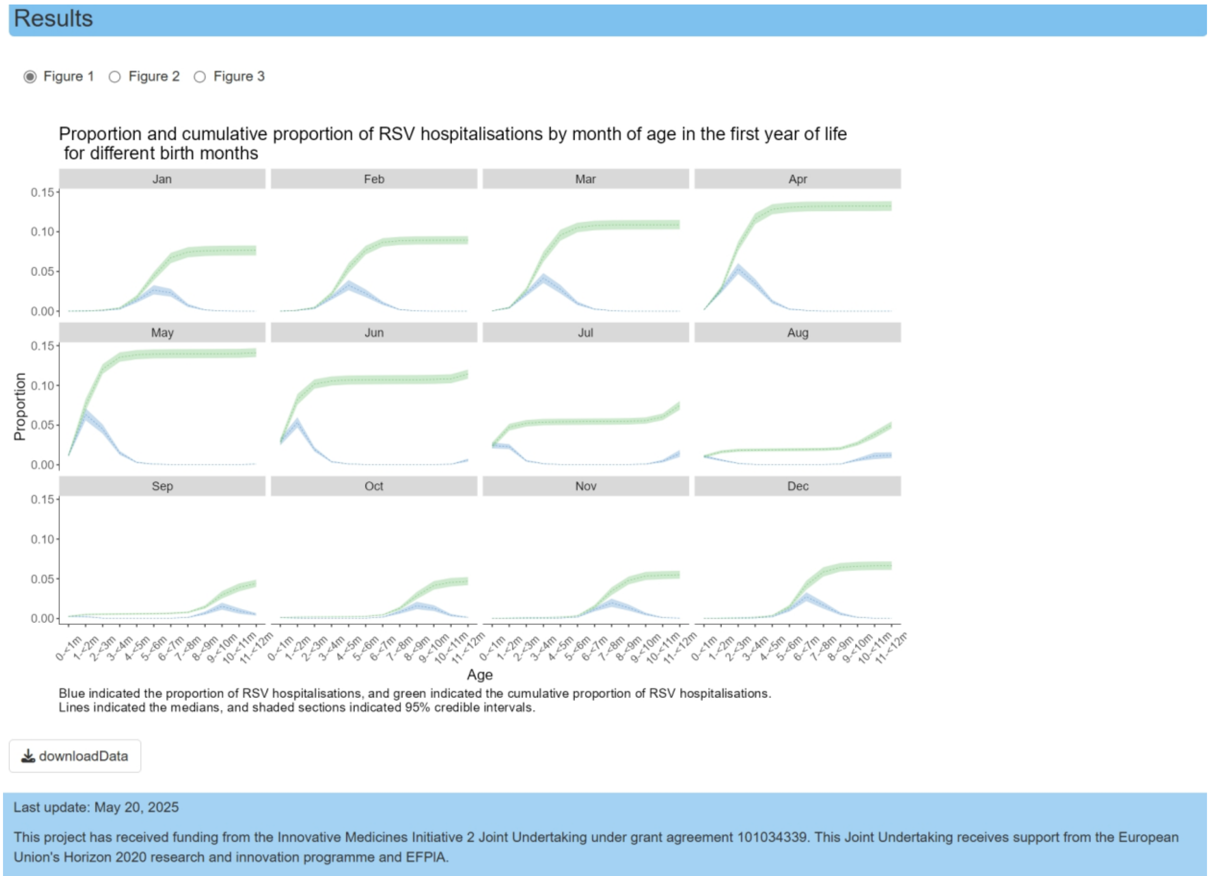
Step 3: Click "Updata" (may take a few seconds)

Step 4: View results. We provide three forms of figures that can be chosen according to preference.

Step 5 (optional): Save results. Click on the download button below the figure to download the csv file of the results.



Interface of the data input



Interface of the data output

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