Supplementary material

Adjusting for case under-ascertainment in estimating RSV hospitalisation burden of older adults in high-income countries: a systematic review and modelling study

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Contents

List of high-income countries

Andorra	Liechtenstein
Antigua and Barbuda	Lithuania
Aruba	Luxembourg
Australia	Macao SAR, China
Austria	Malta
Bahamas, The	Mauritius
Bahrain	Monaco
Barbados	Nauru
Belgium	Netherlands
Bermuda	New Caledonia
British Virgin Islands	New Zealand
Brunei Darussalam	Northern Mariana Islands
Canada	Norway
Cayman Islands	Oman
Channel Islands	Palau
Chile	Panama
Croatia	Poland
Curaçao	Portugal
Cyprus	Puerto Rico
Czech Republic	Qatar
Denmark	Romania
Estonia	San Marino
Faeroe Islands	Saudi Arabia
Finland	Seychelles
France	Singapore
French Polynesia	Sint Maarten (Dutch part)
Germany	Slovak Republic
Gibraltar	Slovenia
Greece	Spain
Greenland	St. Kitts and Nevis
Guam	St. Martin (French part)
Hong Kong SAR, China	Sweden
Hungary	Switzerland
Iceland	Taiwan, China
Ireland	Trinidad and Tobago
Isle of Man	Turks and Caicos Islands
Israel	United Arab Emirates
Italy	United Kingdom
Japan	United States
Korea, Rep.	Uruguay
Kuwait	Virgin Islands (U.S.)
Latvia	

Based on the World Bank Income Classifications (the year 2019): https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

Search strategy and results

MEDLINE (Ovid)

1	exp Pneumonia/ or exp Pneumonia, Bacterial/ or exp pneumonia, viral/	218184
2	exp Respiratory Tract Infections/	492380
3	exp Pneumococcal Vaccines/	8274
4	exp Influenza Vaccines/	24846
5	("community acquired pneumonia" or "community-acquired pneumonia" or "community-acquired pneumonia").mp.	9480
6	exp chronic obstructive lung disease/	61406
7	("exacerbation of COPD" or "COPD exacerbation" or "worsening of COPD" or "COPD worsening").mp.	2602
8	("global burden" or "burden of disease" or "disease burden" or "burden").mp.	225407
9	exp Hospitalization/	270070
10	exp incidence/	285564
11	exp morbidity/	610493
12	exp mortality/	410782
13	((case-fatality or case fatality) adj (rate or ratio)).mp.	6067
14	exp Prevalence/	321497
15	proportion*.mp.	635994
16	exp epidemiology/	27847
17	exp Respiratory Syncytial Virus Infections/	7754
18	exp Respiratory Syncytial Viruses/	9624
19	exp Respirovirus/	7176
20	exp Respirovirus Infections/	2639
21	RSV.mp.	11983
22	exp Human respiratory syncytial virus/	3116
23	1 or 2 or 3 or 4 or 5 or 6 or 7	561406
24	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	1931366
25	17 or 18 or 19 or 20 or 21 or 22	24099
26	23 and 24 and 25	1815
27	limit 26 to humans	1764
28	limit 27 to yr="1996 -Current"	1630
29	limit 28 to "middle aged"	289
30	limit 20 to “adults, 80 and over”	110
31	29 or 30	289

Embase (Ovid)

1	exp Pneumonia/ or exp Pneumonia, Bacterial/ or exp pneumonia, viral/	339596
2	exp Respiratory Tract Infections/	426622
3	exp Pneumococcal Vaccines/	21217
4	exp Influenza Vaccines/	39143
5	("community acquired pneumonia" or "community-acquired pneumonia" or "community-acquired pneumonia").mp.	22550
6	exp chronic obstructive lung disease/	147799
7	("exacerbation of COPD" or "COPD exacerbation" or "worsening of COPD" or "COPD worsening").mp.	6790

8	("global burden" or "burden of disease" or "disease burden" or "burden").mp.	388430
9	exp Hospitalization/	431254
10	exp incidence/	564990
11	exp morbidity/	388710
12	exp mortality/	1188441
13	((case-fatality or case fatality) adj (rate or ratio)).mp.	11162
14	exp Prevalence/	853526
15	proportion*.mp.	966235
16	exp epidemiology/	3816668
17	exp Respiratory Syncytial Virus Infections/	6310
18	exp Respiratory Syncytial Viruses/	6721
19	exp Respirovirus/	4041
20	exp Respirovirus Infections/	296
21	RSV.mp.	17502
22	exp Human respiratory syncytial virus/	6310
23	1 or 2 or 3 or 4 or 5 or 6 or 7	777416
24	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	4958260
25	17 or 18 or 19 or 20 or 21 or 22	26118
26	23 and 24 and 25	5942
27	limit 26 to human	5511
28	limit 27 to yr="1996 -Current"	5442
29	limit 28 to aged <65+ years>	642

Web of Science

1	TOPIC: (((RSV OR "respiratory syncytial virus*") OR "respiroviruses") OR "Respiratory syncytial virus infection*")	24470
2	TOPIC: ((((((((((((("epidemiology" OR "global burden") OR "burden of disease") OR "disease burden") OR "burden") OR "Hospitali?ation") OR "incidence") OR "mortality") OR "morbidity") OR "case fatality ratio") OR "case-fatality ratio") OR "case fatality rate") OR "case-fatality rate") OR "proportion*") OR "prevalence"))	4115892
3	TOPIC: ((((((((((((((("pneumonia" OR "viral pneumonia") OR "bacterial pneumonia") OR "respiratory tract infection*") OR "respiratory tract disease*") OR "respiratory disease") OR "acute respiratory infection*") OR "community acquired pneumonia") OR "community-acquired pneumonia") OR "community-acquired pneumonia") OR "chronic obstructive lung disease") OR "COPD") OR "exacerbation of COPD") OR "COPD exacerbation") OR "worsening of COPD") OR "COPD worsening"))	262305
4	TOPIC: (((((("elderly" OR "older adult*") OR "adult*") OR "aged") OR "middle"))	3079348

5	TOPIC: (((RSV OR "respiratory syncytial virus*") OR "respiroviruses") OR "Respiratory syncytial virus infection*") AND TOPIC: ((((((((((((("epidemiology" OR "global burden") OR "burden of disease") OR "disease burden") OR "burden") OR "Hospitali?ation") OR "incidence") OR "mortality") OR "morbidity") OR "case fatality ratio") OR "case-fatality ratio") OR "case fatality rate") OR "case-fatality rate") OR "proportion*") OR "prevalence")) AND TOPIC: ((((((((((((((("pneumonia" OR "viral pneumonia") OR "bacterial pneumonia") OR "respiratory tract infection*") OR "respiratory tract disease*") OR "respiratory disease") OR "acute respiratory infection*") OR "community acquired pneumonia") OR "community-acquired pneumonia") OR "community-acquired pneumonia") OR "chronic obstructive lung disease") OR "COPD") OR "exacerbation of COPD") OR "COPD exacerbation") OR "worsening of COPD") OR "COPD worsening")) AND TOPIC: (((((("elderly" OR "older adult*") OR "adult*") OR "aged") OR "middle"))	1183
6	TOPIC: (((RSV OR "respiratory syncytial virus*") OR "respiroviruses") OR "Respiratory syncytial virus infection*") AND TOPIC: ((((((((((((("epidemiology" OR "global burden") OR "burden of disease") OR "disease burden") OR "burden") OR "Hospitali?ation") OR "incidence") OR "mortality") OR "morbidity") OR "case fatality ratio") OR "case-fatality ratio") OR "case fatality rate") OR "case-fatality rate") OR "proportion*") OR "prevalence")) AND TOPIC: ((((((((((((((("pneumonia" OR "viral pneumonia") OR "bacterial pneumonia") OR "respiratory tract infection*") OR "respiratory tract disease*") OR "respiratory disease") OR "acute respiratory infection*") OR "community acquired pneumonia") OR "community-acquired pneumonia") OR "community-acquired pneumonia") OR "chronic obstructive lung disease") OR "COPD") OR "exacerbation of COPD") OR "COPD exacerbation") OR "worsening of COPD") OR "COPD worsening")) AND TOPIC: (((((("elderly" OR "older adult*") OR "adult*") OR "aged") OR "middle")) AND Index date: 1996/01/01 to 2021/11/20	1163

Global Index Medicus

1	Title, abstract, subject: Respiratory syncytial virus	1312
2	Title, abstract, subject: adult OR elderly OR middle aged OR middle-aged	484249
3	Title, abstract, subject: Respiratory syncytial virus AND Title, abstract, subject: adult OR elderly OR middle aged OR middle-aged	183
4	Title, abstract, subject: Respiratory syncytial virus AND Title, abstract, subject: adult OR elderly OR middle aged OR middle-aged	174

	Year range: 1996 to 2021	
5	Title, abstract, subject: Respiratory syncytial virus AND Title, abstract, subject: adult OR elderly OR middle aged OR middle-aged Year range: 1996 to 2021; Language: English	67

Global Health (CABI)

1	exp pneumonia/ or "bacterial pneumonia".mp. or "viral pneumonia".mp.Advanced	25267
2	exp respiratory diseases/ or "respiratory tract infection*".mp. or "acute respiratory infection*".mp.	134916
3	"Pneumococcal Vaccine*".mp.	1354
4	"Influenza Vaccines*".mp.	1919
5	exp community acquired pneumonia/	3161
6	("chronic obstructive lung disease" or "COPD").mp.	6036
7	("exacerbation of COPD" or "COPD exacerbation" or "worsening of COPD" or "COPD worsening").mp.	345
8	("global burden" or "burden of disease" or "disease burden" or "burden").mp.	64130
9	Hospitali?ation.mp.	28933
10	exp incidence/	94182
11	exp morbidity/	29726
12	exp mortality/	126131
13	((case-fatality or case fatality) adj (rate or ratio)).mp.	3327
14	exp disease prevalence/	140243
15	proportion*.mp.	118951
16	exp epidemiology/	264038
17	exp Human respiratory syncytial virus/	4876
18	RSV.mp.	4352
19	exp Respirovirus/	640
20	exp elderly/	55388
21	elderly.mp.	63723
22	adult*.mp.	273707
23	"older adult*".mp.	56800
24	"middle aged".mp.	13757
25	1 or 2 or 3 or 4 or 5 or 6 or 7	137928
26	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	555500
27	17 or 18 or 19	6354
28	20 or 21 or 22 or 23 or 24	284439

29	25 and 26 and 27 and 28	432
30	limit 29 to yr="1996 -Current"	432

CINAHL (Ebsco)

S1	(MH "Pneumonia+")	32380
S2	(MH "Pneumonia, Bacterial") OR (MH "Pneumonia, Viral")	12644
S3	(MH "Respiratory Tract Infections+") OR (MH "Respiratory Tract Diseases+")	324735
S4	(MH "Influenza Vaccine")	11060
S5	(MH "Pneumococcal Vaccine")	3150
S6	(MH "Community-Acquired Pneumonia")	1314
S7	(MH "Pulmonary Disease, Chronic Obstructive+")	21321
S8	"""exacerbation of COPD" or "COPD exacerbation" or "worsening of COPD" or "COPD worsening"""	956
S9	"""global burden" or "burden of disease" or "disease burden" or "burden"""	96933
S10	(MH "Hospitalization+")	112183
S11	(MH "Incidence")	77209
S12	(MH "Morbidity+")	183019
S13	(MH "Mortality+")	78926
S14	(MH "Prevalence")	102478
S15	(MH "Epidemiology+")	7 69070
S16	""case-fatality rate" OR "case fatality rate" OR "case-fatality ratio" OR "case fatality ratio""	742
S17	""proportion*""	177678
S18	(MH "Respiratory Syncytial Virus Infections")	2094
S19	(MH "Respiratory Syncytial Viruses")	1115
S20	"""RSV"""	2046
S21	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8	330941
S22	S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S1	938768
S23	S18 OR S19 OR S20	3168
S24	S21 AND S22 AND S23	793
S24 AND PY 1996-2021	Limiters - Publication Year: 1996-2021; Narrow by SubjectAge: - aged, 80 & over; Narrow by SubjectAge: - middle aged: 45-64 years; Narrow by SubjectAge: - aged: 65+ years	106

Total search results retrieved

1.	Medline	285
2.	Embase	634
3.	Web of Science	1159
4.	Global Index Medicus	67
5.	Global Health	431
6.	CINAHL	106
	Total results (without deduplication)	**2682**

Quality assessment

The Joanna Briggs Institute (JBI) critical appraisal tools [1] were applied. JBI grants use of these tools for research purposes.

Cohort study

Questions	Yes	No	Unclear	Not applicable
Were the exposures measured similarly to assign people to both exposed and unexposed groups?				
Was the exposure measured in a valid and reliable way?				
Were confounding factors identified?				
Were strategies to deal with confounding factors stated?				
Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?				
Were the outcomes measured in a valid and reliable way?				
Was the follow up time reported and sufficient to be long enough for outcomes to occur?				
Was follow up complete, and if not, were the reasons to loss to follow up described and explored?				
Were strategies to address incomplete follow up utilized?				
Was appropriate statistical analysis used?				

Cross-sectional study

Questions	Yes	No	Unclear	Not applicable
Were the criteria for inclusion in the sample clearly defined?				
Were the study subjects and the setting described in detail?				
Was the exposure measured in a valid and reliable way?				
Were objective, standard criteria used for measurement of the condition?				
Were confounding factors identified?				
Were strategies to deal with confounding factors stated?				
Were the outcomes measured in a valid and reliable way?				
Was appropriate statistical analysis used?				
Were the criteria for inclusion in the sample clearly defined?				

Detection proportions used for obtaining adjustment ratios

Testing approaches (step 1)

Candidate approach	Gold standard approach	Detection proportion posterior distribution	Reference
Serology + PCR	Serology + PCR + culture	1	Falsey et al. 2002 [2]
PCR	Serology + PCR + culture	Beta(88, 31)	Falsey et al. 2002 [2]
Serology + culture	Serology + PCR + culture	Beta(111,8)	Falsey et al. 2002 [2]
Serology	Serology + PCR + culture	Beta(105,14)	Falsey et al. 2002 [2]
Rapid antigen test	PCR	Beta(33,19)	Onwuchekwa et al. 2023 [3]
Rapid antigen test	Serology + PCR + culture	Beta(88,31) * Beta(33,19)	(calculated based on above)

PCR = polymerase chain reaction. Assuming a single nasopharyngeal swab taken for PCR, culture and rapid antigen test.

Clinical specimens (step 2)

Candidate approach	Gold standard approach	Detection proportion posterior distribution	Reference
NPS	Serum + NPS + Saliva + Sputum	Beta(32,20)	Ramirez et al. 2022 [4]
Serum + NPS	Serum + NPS + Saliva + Sputum	Beta(32,20)	See note
Serum	Serum + NPS + Saliva + Sputum	Beta(32,20)	See note

Note: these were set arbitrarily to be identical to NPS alone as serum (i.e., serology) had been already adjusted for in step 1 (i.e., adjusting for testing approaches), to avoid double counting. NPS = nasopharyngeal swab. Assuming a single PCR test used for NPS, saliva and sputum.

Adjustment ratios used in the analysis

Clinical specimen	Testing approach	Adjustment ratio (95% CI)
NPS	PCR	2.19 (1.72–2.97)
NPS	Rapid antigen test	3.47 (2.59–4.99)
Serum + NPS	Serology + Culture	1.75 (1.46–2.24)
Serum + NPS	Serology + PCR + Culture	1.63 (1.36–2.08)
Unclear*	PCR	2.19 (1.72–2.97)
Unclear*	Rapid antigen test	3.47 (2.59–4.99)

*Assuming same sensitivity to NPS.

Characteristics of included studies

Study	Design	Study period	Number of seasons	Country / territory	Clinical specimen	Testing approach	Quality assessment score (%)
Aronen et al. 2019 [5]	Cohort (prospective)	July 2007 to April 2009	2	Finland	NPS	PCR	90
Auvinen et al. 2021 [6]	Cohort (prospective)	November 2016 to May 2020	4	Finland	Unclear	PCR	90
Belongia et al. 2018 [7]	Cohort (prospective)	2004 to 2016	12	USA	NPS	PCR	80
Branche et al. 2022 [8]	Cross-sectional (prospective)	October 2017 to March 2020	3	USA	NPS	PCR	88
Falsey et al. 2005 [9]	Cohort (prospective)	1999 to 2003	4	USA	Serum + NPS	Serology + PCR + Culture	70
Malosh et al. 2017 [10]	Cohort (prospective)	November 2014 to April 2016	2	USA	Unclear	PCR	70
Nolen et al. 2020 [11]	Cohort (prospective)	November 2016 to October 2018	2	USA	NPS	PCR	70
Prasad et al. 2020 [12]	Cross-sectional (retrospective)	April 2012 to December 2015	3	New Zealand	NPS	PCR	100
Prasad et al. 2021 [13]	Cross-sectional (retrospective)	April 2012 to December 2015	3	New Zealand	NPS	PCR	100
Tseng et al. 2020 [14]	Cohort (retrospective)	January 2011 to June 2015	4	USA	Unclear	PCR	80
Widmer et al. 2012 [15]	Cross-sectional (prospective)	November 2006 to April 2009	3	USA	NPS	PCR	88
Widmer et al. 2014 [16]	Cohort (prospective)	May 2009 to April 2010	1	USA	NPS	PCR	80

NPS = nasopharyngeal swab; PCR = polymerase chain reaction.

Quality assessment results

Cohort study

Questions	Aronen et al. 2019 [5]	Auvinen et al. 2021 [6]	Belongia et al. 2018 [7]	Falsey et al. 2005 [9]	Malosh et al. 2017 [10]	Nolen et al. 2020 [11]	Tseng et al. 2020 [14]	Widmer et al. 2014 [16]
Were the exposures measured similarly to assign people to both exposed and unexposed groups?	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Was the exposure measured in a valid and reliable way?	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Were confounding factors identified?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were strategies to deal with confounding factors stated?	Yes	No	No	No	Yes	No	Yes	No
Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	Yes	Yes	No	No	No	No	Yes	No
Were the outcomes measured in a valid and reliable way?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Was the follow up time reported and sufficient to be long enough for outcomes to occur?	No	Yes	Yes	Yes	No	No	Yes	Yes
Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were strategies to address incomplete follow up utilized?	NA	NA	NA	NA	NA	NA	NA	NA
Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes

NA = not applicable.

Cross-sectional study

Questions	Branche et al. 2022 [8]	Prasad et al. 2020 [12]	Prasad et al. 2021 [13]	Widmer et al. 2012 [15]
Were the criteria for inclusion in the sample clearly defined?	No	Yes	Yes	Yes
Were the study subjects and the setting described in detail?	Yes	Yes	Yes	Yes
Was the exposure measured in a valid and reliable way?	Yes	Yes	Yes	Yes
Were objective, standard criteria used for measurement of the condition?	Yes	Yes	Yes	Yes
Were confounding factors identified?	Yes	Yes	Yes	Yes
Were strategies to deal with confounding factors stated?	Yes	Yes	Yes	No
Were the outcomes measured in a valid and reliable way?	Yes	Yes	Yes	Yes
Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes

NA = not applicable.

List of included studies with RSV-associated ARI hospitalisation rate estimates

Study	Country	Location	Age group	Year(s) of reporting	Hospitalisation rate (95% CI), per 100,000
Auvinen et al. 2021 [6]	Finland	Jorvi hospital	65-99	2016-2017	19.3 (8.8-36.6)
	Finland	Jorvi hospital	65-99	2017-2018	117.6 (89.1-152.3)
	Finland	Jorvi hospital	65-99	2018-2019	43.9 (27.5-66.5)
	Finland	Jorvi hospital	65-99	2019-2020	52.3 (34.5-76.1)
	Finland	Jorvi hospital	65-84	2016-2017	9.5 (2.6-24.3)
	Finland	Jorvi hospital	65-84	2017-2018	89 (63.3-121.6)
	Finland	Jorvi hospital	65-84	2018-2019	31 (16.9-51.9)
	Finland	Jorvi hospital	65-84	2019-2020	34.4 (19.7-55.9)
	Finland	Jorvi hospital	85-99	2016-2017	112.3 (36.5-261.9)
	Finland	Jorvi hospital	85-99	2017-2018	386.5 (229.2-610.2)
	Finland	Jorvi hospital	85-99	2018-2019	165.5 (71.5-325.8)
	Finland	Jorvi hospital	85-99	2019-2020	214.8 (107.3-384)
Branche et al. 2022 [8]	USA	Rochester, NY	65-99	2017-2018	138.2 (114.46-166.86)
	USA	New York City	65-99	2017-2018	212 (168.58-266.6)
	USA	Rochester, NY	65-99	2018-2019	136.92 (113.3-165.46)
	USA	New York City	65-99	2018-2019	255.56 (207.43-314.86)
	USA	Rochester, NY	65-99	2019-2020	139.48 (115.62-168.26)
	USA	New York City	65-99	2019-2020	214.9 (171.16-269.83)
	USA	Rochester, NY	65-74	2017-2018	112.47 (85.25-148.37)
	USA	New York City	65-74	2017-2018	98.8 (62.26-156.78)
	USA	Rochester, NY	65-74	2018-2019	83.23 (60.31-114.85)
	USA	New York City	65-74	2018-2019	115.27 (75.17-176.74)
	USA	Rochester, NY	65-74	2019-2020	103.47 (77.51-138.12)
	USA	New York City	65-74	2019-2020	126.24 (83.91-189.93)
	USA	Rochester, NY	75-84	2017-2018	154.96 (111.29-215.76)

Study	Country	Location	Age group	Year(s) of reporting	Hospitalisation rate (95% CI), per 100,000
	USA	New York City	75-84	2017-2018	253.27 (173.77-369.14)
	USA	Rochester, NY	75-84	2018-2019	159.38 (115-220.9)
	USA	New York City	75-84	2018-2019	281.41 (196.85-402.28)
	USA	Rochester, NY	75-84	2019-2020	154.96 (111.29-215.76)
	USA	New York City	75-84	2019-2020	272.03 (189.13-391.26)
	USA	Rochester, NY	85-99	2017-2018	207.15 (137.71-311.59)
	USA	New York City	85-99	2017-2018	504.11 (348.39-729.44)
	USA	Rochester, NY	85-99	2018-2019	306.22 (218.91-428.34)
	USA	New York City	85-99	2018-2019	666.15 (483.17-918.43)
	USA	Rochester, NY	85-99	2019-2020	255.18 (174.2-365.07)
	USA	New York City	85-99	2019-2020	396.09 (261.02-601.05)
Nolen et al. 2020 [11]	USA	Bethel and Anchorage	65-99	2016-2018	356 (178-637)
Prasad et al. 2020 [12]	New Zealand	Auckland	65-99	2012-2015	99.2 (82.4-115.9)
	New Zealand	Auckland	65-79	2012-2015	72.9 (57.4-88.3)
	New Zealand	Auckland	80-99	2012-2015	190.8 (137.6-244.4)
Widmer et al. 2012 [15]	USA	Tennessee, Davidson County	65-99	2006-2009	254 (131-380)
Widmer et al. 2014 [16]	USA	Tennessee, Davidson County	65-99	2009-2010	189.6 (104-340)

ARI = acute respiratory infection.

List of included studies with proportion of RSV in all-cause ARI hospitalisations

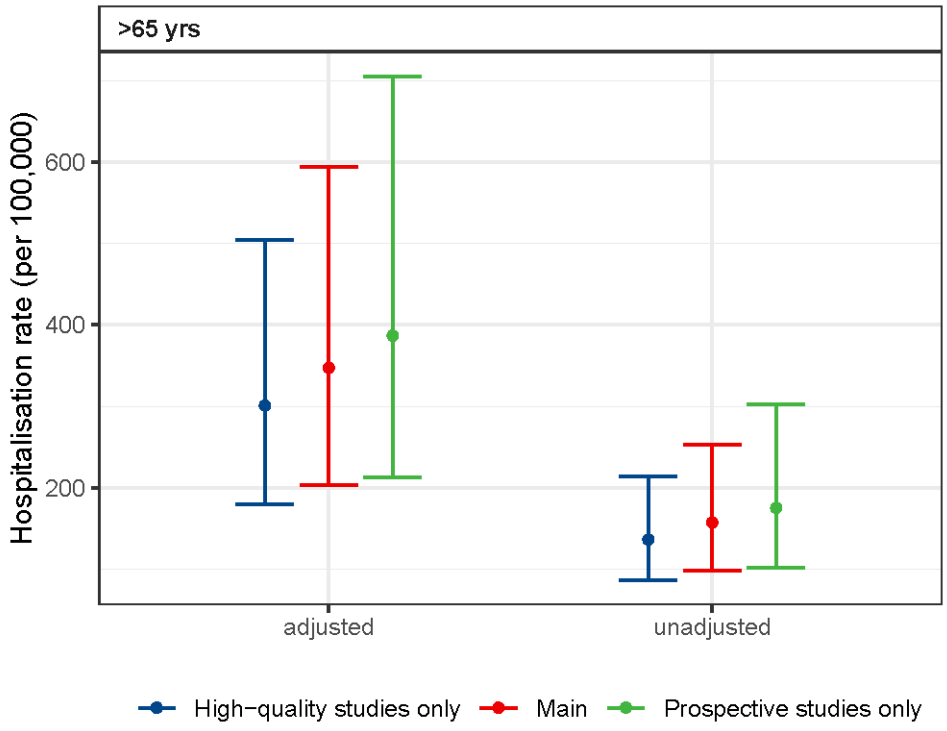
Study	Country	Location	Case definition	Age group	Year(s) of reporting	Number of tests	Number of RSV positives
Aronen et al. 2019 [5]	Finland	Turku City Hospital	ARI	65-	2007-2009	382	22
Auvinen et al. 2021 [6]	Finland	Jorvi hospital	ARI	65-84	2016-2020	427	73
	Finland	Jorvi hospital	ARI	85-	2016-2020	199	42
	Finland	Jorvi hospital	ARI	65-	2016-2020	626	115
Falsey et al. 2005 [9]	USA	Rochester General Hospital	ARI	65-	1999-2003	1388	142
Malosh et al. 2017 [10]	USA	two Southeast Michigan hospitals.	ARI	65-	2014-2016	426	28
Nolen et al. 2020 [11]	USA	YKD Regional Hospital (Bethel) and Alaska Native Medical Center (Anchorage)	ARI	65-	2016-2018	153	4
Prasad et al. 2020 [12]	New Zealand	Auckland	ARI	65-	2012-2015	2104	191
	New Zealand	Auckland	ARI	65-79	2012-2015	1308	118
	New Zealand	Auckland	ARI	80-	2012-2015	796	73
Prasad et al. 2021 [13]	New Zealand	2 public hospitals in Auckland	ARI	65-79	2012-2015	1379	124
Widmer et al. 2012 [15]	USA	Tennessee, Davidson County (2 hospitals)	ARI	65-	2006-2009	282	19

ARI = acute respiratory infection; SARI = severe acute respiratory infection; LRTI = lower respiratory tract infection; COPD = chronic obstructive pulmonary disease.

List of included studies with CFR data on RSV-associated ARI hospitalisations

Study	Country	Location	Case definition	Age group	Year(s) of reporting	Number of deaths	Number of hospitalisations
Aronen et al. 2019 [5]	Finland	Turku city	ARI	65-	2007-2009	0	22
Belongia et al. 2018 [7]	USA	Marshfield, WI	ARI	60-	2004-2016	0	29
Falsey et al. 2005 [9]	USA	Rochester General Hospital	ARI	65-	1999-2003	10	142
Tseng et al. 2020 [14]	USA	Southern California	ARI	60-	2011-2015	37	664
	USA	Southern California	ARI	60-74	2011-2015	11	238
	USA	Southern California	ARI	75-	2011-2015	26	426

Results from sensitivity analyses that included only prospective studies and included only high-quality studies



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