

Supplementary Table: Data Extraction Table

	Study Details		Methodology			Population						Outcomes relating to RSV	Conclusions	Quality Scores		
	Citation	Country	Study Design	Intervention	Duration	Inclusion criteria	Exclusion criteria	Disease status	N	Gender	Mean age at admission			Evidence Level	Item Bank	JADAD
¹	Ajayi-Obe et al. 2008.	UK	Prospective, single centre study	None	2002-2004	Children <6 years with ARTI; seizure; acute febrile gastroenteritis without rebound tenderness or guarding; apnoea or any life-threatening event in infants aged <12 months; acute febrile illness	Contraindication for nasopharyngeal aspiration, i.e. recent nasopharyngeal surgery or acute epiglottitis; parental language barrier; any condition with acute rash or known non-respiratory viral illness	Presenting with symptoms suggesting influenza	977	M:F 1.46:1	17.2 months	19.1% of samples (year 1) and 27.0% of samples (year 2) tested positive for RSV, equivalent to 32.1/100 and 59.4/100 influenza-like admissions per person-year, respectively. The highest incidence of RSV was in infants <6 months old.	The high paediatric RSV and influenza rates can be used to inform UK policy on immunisation strategies.	1	11	NA
²	Alan et al. 2015.	Turkey	Prospective, multicentre study	None	-	Newborns hospitalized with ALRI and Respi-Strip® RSV test	NR	Confirmed RSV infection	250	NR	NR	68.4% of RSV-hospitalized infants. RSV-related mortality rate was 1.2%.	RSV is a significant cause of infant hospitalization during the RSV season, and may present a threat to others in the NICU.	3	10	NA
³	Alonso et al. 2007.	Spain	Retrospective, single centre study	None	1992-2004	Infants <24 months old hospitalized with acute RSV bronchiolitis	NR	Confirmed RSV infection	1324	M: 63.8%	6.89 months	RSV epidemics started in September (45%) or October (55%), and predominantly ended in February (73%), but sometimes March (9%) or as late as April (9%).	RSV bronchiolitis epidemics vary by year but have a seasonal rhythm.	3	7	NA
⁴	Artiles-Campelo et al. 2006.	Spain	Prospective, single centre study	None	2002-2005	Children admitted to Pediatric Emergency Unit with ARTI	NR	Confirmed RSV infection	1729	M: 59.3%	54.4% with RSV were < 2 months old. Median age was 2 months	RSV infection was identified in 44.5% of hospitalized infants.	RSV is the primary cause of acute respiratory tract infection in children in Gran Canaria.	1	4*	NA
⁵	Asner et al. 2015.	Canada	Retrospective, single centre study	Viral co-infection	2007-2009	Swabs taken from children <18 years hospitalized with symptoms of ARTI	NR	Confirmed RSV infection	750 swabs from 742 infants	NR	NR	RSV infection was identified in 18.7% of tested swabs. RSV was a single virus infection in 74.3% of cases. RSV con-infections were linked to increased presentation with pneumonia.	Clinical severity is similar between RSV infection and RSV co-infection.	1	11	NA
⁶	Belderbos et al. 2011.	Netherlands	Prospective, multiple centre study	None	2006-2009	Healthy newborns, born after uncomplicated gestation of ≥37 weeks.	NR	Confirmed RSV infection	156	M: 71/156	NR	18% developed RSV in first year. Plasma vitamin D levels were lower in neonates who later developed RSV LRTI. Neonates born with vitamin D concentrations <50 nmol/L had a 6 times higher risk of RSV LRTI in the first year of life.	Vitamin D deficiency in healthy newborns is associated with increased risk of RSV infection.	1	11	NA
⁷	Berger et al. 2010.	Austria	Retrospective, single centre study	None	2007-2008	All preterm infants admitted to the NICU/NIMCU; all staff, all parents/visitors	NR	Confirmed RSV infection	1002 specimens from 266 persons	NR	NR	4/1002 specimens from 266 patients tested positive for RSV. Two of these specimens were from the same patient.	RSV rate and nosocomial transmission of RSV in the neonatal ward is very low.	1	10	NA
⁸	Bicer et al. 2013.	Turkey	Retrospective, single centre study	Viral co-infection	2010-2011	All children <9 years of age hospitalized with RTI symptoms with a diagnosis of ARTI including bronchitis, bronchiolitis and bronchopneumonia	NR	Confirmed RTI infection	103	M:F 1.4:1	34.9 months	RSV was detected in 32% of viral infections, and was identified significantly more than any other virus.	RSV was associated with higher severity of illness in children hospitalized with an RTI.	1	10	NA

⁹	Bourgeois et al. 2009.	USA	Prospective, single centre study	None	2003-2005	Children ≤7 years of age treated in the ED for an ARTI	NR	Confirmed RSV or influenza infection	708	NR	NR	164/708 had RSV infection. 70.9% RSV infants were male. Approximately 21.5/1000 ED were due to RSV. Rates were highest in children aged 0-23 months. Significantly more children required hospitalization as a result of an RSV infection compared with influenza.	RSV is associated with higher rates of ED visits, hospitalization and caregiver resource use than influenza.	3	11	NA
¹⁰	Boyce et al. 2000.	USA	Retrospective, multicentre study	None	1989-1993	Children <3 years old enrolled at birth in Tennessee Medicaid	NR	Confirmed RSV or bronchiolitis infection	248,652 child-years	M: 51%	<3 years	An overall rate of 81.6 RSV hospitalizations per 100 child years in infants <12 months old was reported. Infants with BPD, CHD, other conditions or preterm birth had a higher risk of RSV infection.	Children <24 months with BPD have high rates of RSV hospitalization. After the first year of life, children with CHD or prematurity have similar rates to low risk infants <12 months old.	3	11	NA
¹¹	Brandenburg et al. 1997.	Netherlands/Switzerland	Retrospective/prospective, multicentre study	None	1993-1995	All children <12 months of age admitted with confirmed RSV infection	NR	Virologically confirmed RSV infection	151	M: 89; F: 62	Medians of 79-108 days	In Rotterdam, apnoea, higher rate of admission to ICU, mechanical ventilation, and length of stay in hospital was higher. In Geneva higher respiratory rates, more wheezing, and more retractions were recorded.	Unidentified local factors influence the pattern and severity of RSV infection.	1	10	NA
¹²	Brooks et al. 1999.	USA	Retrospective single centre study	None	1984-1994	All children hospitalized to general paediatric unit with RSV LRTI, ≥35 wGA at birth	NR	Confirmed RSV infection	542	NR	NR	Extreme tachypnea and hypoxemia are associated with deterioration after RSV hospitalization. 1.8% (10/542) of infants required PICU transfer.	There is a low incidence of clinical deterioration in previously well, full-term infants hospitalized with RSV LRTI.	2	10	NA
¹³	Calvo et al. 2008.	Spain	Prospective, single centre study	Viral co-infection	2000-2003	Children <2 years old admitted for ARTI	NR	Virologically confirmed RSV infection	749	NR	NR	RSV was the most frequently isolated agent, detected in 76.1% of virally determined infections. RSV was found in 50.2% of infants.	Multiple viral infections are frequent in hospitalized children with respiratory tract infection.	1	11	NA
¹⁴	Calvo et al. 2010.	Spain	Prospective, single centre study	Viral co-infection	2005-2008	Children <2 years old hospitalized with acute viral bronchiolitis	NR	Virologically confirmed bronchiolitis	318	M: 55%	5.6 months	RSV was detected in 61.3% of bronchiolitis hospitalizations, and was responsible for 69.9% of single infections. RSV patients were significantly younger than HBoV or hMPV patients.	RSV is the primary cause of bronchiolitis hospitalization during the winter months.	1	11	NA
¹⁵	Calvo et al. 2015.	Spain	Prospective, single centre study	Viral co-infection	2005-2013	Children <14 years old admitted for ARTI	NR	Virologically confirmed respiratory infection	2525	NR	NR	599 RSV single infections, 326 RSV multiple infections and 120 RSV/RV multiple infections were detected. Children with RSV were youngest, and RSV/RV children were younger than RV children. Fever, hypoxia, and longer hospitalization were reported in RSV and RSV/RV compared to RV.	Coinfections between RSV-RV and RSV-HBoV are frequent. Overall, viral coinfections do not present greater severity, but have mixed clinical features.	1	10	NA
¹⁶	Centers for Disease Control and Prevention. 2013.	USA	Retrospective multicentre, epidemiological analysis	None	2011-2013	-	NR	Antigen-detected RSV infection	NR	NR	NR	For the 2011–12 season, RSV circulation began nationally in mid-November and ended in early April. Circulation peaked at 26% positive results in late January. During the 2012–13 RSV season, onset occurred in 9/10 regions by December 15, 2012.	Patterns in national RSV circulation in the USA were similar to those observed previously. Onset, offset, and duration varied among the regions.	2	NA	NA
¹⁷	Centers for Disease Control and Prevention. 2011.	USA	Retrospective multicentre, epidemiological analysis	None	2007-2011	-	NR	Antigen-detected RSV infection	NR	NR	NR	RSV season onset began as early as mid-October and lasted as late as early May. Each region had individual season within 5 weeks either side of the median onset and offset dates. Median seasonal durations ranged 13-23 weeks. Median peak RSV activity occurred from mid-December to early February.	In all regions, the most current RSV season onset and offset began during the same week or later than the onset during the first year of analysis.	2	NA	NA
¹⁸	Choudhuri et al. 2006.	USA	Retrospective, multicentre study	Altitude	1998-2002	Available hospitalization discharge data for children <5 years old	Data limited to admissions for the 6 months of January to May, and December (Colorado RSV season)	RSV-associated hospitalization	NR	NR	Median 20 months	Infants <1 year had 25% increased hospitalization rates compared with children aged 1-4 years. RSV ICD-9-CM codes increased 25% among infants <1 year and 53% among children aged 1-4 years for every 1000 m increase in mean altitude.	High altitude above 2500 m is a modest predictor for RSV hospitalization.	2	10	NA

19	Cilla et al. 2006.	Spain	Retrospective, single centre study	None	1996-2000	Children <2 years old admitted for acute, community-acquired RSV infection, hospitalized for more than 24 hours	NR	Confirmed RSV infection	357	M: 53.5%	NR	RSV hospitalizations were greater in premature infants and in those with low birthweight. Hospitalization rate in the second year of life was low. Associations were found between RSV and maternal age, CHD, suburban residence, and birth between July-December.	In a general infant population, low birthweight is an independent risk factor for RSV.	3	10	NA
20	Constantopoulos et al. 2002.	Greece	Prospective, multiple centre study	None	1999-2000	All children between 2 weeks and 24 months admitted to hospital for ARTI	Infants with immunodeficiency; infants admitted directly to ICU	Confirmed RSV infection	1710	M: 62%	5.98 months	The overall prevalence of RSV compared to all respiratory infections was 33.1%. Hospitalization was highest in January-March. RSV was correlated with younger age (1-3 months) and lower GA. RSV-positive children received bronchodilators, steroids, and oxygen more frequently than RSV-negative children.	Recommendations for RSV prophylaxis and infection control measures should focus on infants <6 months of age during RSV outbreaks.	1	11	NA
21	Corsello et al. 2008.	Italy	Prospective, single centre study	None	2005-2006	All children <2 years of age hospitalized with symptoms suggesting LRTI or developing LRTI during hospitalization for other reasons	NR	Confirmed RSV infection	164	M:68; F:96	NR	13.7% of all child admissions during study period were due to RSV infection. The RSV epidemic peaked in April. RSV infection was correlated with age <3 months, male gender, and low birthweight. RSV infection was linked to increased hospitalization length and admission to ICU.	In Sicily, RSV is an important cause of LRTIs in infants. A variety of factors, such as gender, age at hospitalization, and birth weight, may affect the prevalence of RSV.	1	12	NA
22	Deshpande et al. 2003.	UK	Retrospective, multicentre study	None	1996-1999	All children <2 years of age resident within the health authority boundaries with a positive RSV test	Children born in the area that had moved away, and transient residents	Confirmed RSV infection	411	M:F 1.5:1	Median 20.5 weeks	RSV had a rate of 16.3/1000 children. Hospitalization rates were higher in preterm infants born <36 weeks and aged <6 months at the start of the RSV season, and children with CLD.	Preterm infants requiring ventilator assistance during the neonatal period, and those discharged on home oxygen therapy are at particular risk of RSV hospitalization. Serious adverse outcomes are rare, even among high risk infants.	3	11	NA
23	Díez Domingo et al. 2006.	Spain	Retrospective, multicentre study	None	2001-2002	Children < 2 years hospitalized for bronchitis and RSV infections	Nosocomial RSV infections; second cases of bronchiolitis	Confirmed RSV infection	3507	NR	NR	42.2% of bronchiolitis hospitalizations were due to RSV. Hospitalizations peaked between October-April.	Microbiological investigation is low in some hospitals, and the impact of RSV may be underestimated.	3	11	NA
24	El-Hajje et al. 2008.	France	Prospective, single centre study	None	2002-2004	All children admitted to the ED for respiratory illness	NR	Confirmed RSV infection	1212	M 58%	39.6% younger than 6 months	375 cases of RSV were isolated. 74% of RSV cases were reported in children aged <2 years.	RSV is the primary virus found and is associated with bronchiolitis episodes, asthma, and viral pneumonia.	1	8	NA
25	Eriksson et al. 2002.	Sweden	Prospective, single centre study	None	1987-1998	All children hospitalized for RSV infection	NR	Virologically confirmed RSV infection	1354	M: 54%	Median 2.7 months	RSV epidemics had a regular biannual pattern. Children with risk factors were older and had longer hospitalizations. 76% of patients without risk factors had older siblings. Later hospitalization for wheezing was increased in children hospitalized for RSV infection.	The study found lower population rates of RSV hospitalization and complications than previously reported. The seasonal variation and the presence of siblings in the home influenced rates by factors of 2.	3	10	NA
26	Ferrara et al. 2014.	Italy	Prospective, single centre study	Viral co-infection	2004-2013	Infants hospitalized at the Pediatric Emergency Unit for bronchiolitis	NR	Confirmed RSV infection	654	M:355; F:299	Median 64 days	Respiratory viruses were detected in 49.2% of infants: RSV was the most commonly detected virus (31.3%). 73.4% of confirmed infections occurred between December to February with a peak in January. HBoV infants were older than RSV and HRV infants. No significant differences in risk factors for schooling, breast feeding, family history of atopy and asthma, and smoking were identified.	RSV is the main virus involved in bronchiolitis in infants. The clinical aspects of the disease remained stable over 9 years.	2	4*	NA

27	Fjaerli et al. 2004.	Norway	Retrospective, multicentre study	None	1993-2000	Children <2 years old admitted to hospital with bronchiolitis	NR	Confirmed RSV infection	764	M: 63%	Median 6 months	93% of infants had one hospitalization; 7% had two or more hospitalizations. Mean annual hospitalization rates were 21.7/1.000 children <1 year and 14.1/1.000 children <2 years. 77 children belonged to one or more high-risk groups, e.g. preterm birth, trisomy 21 and CHD.	Hospitalization incidences and outcome of RSV bronchiolitis were in agreement with other studies. Hospitalization length and morbidity was high in both preterm children, children with CHD and in children with trisomy 21.	3	11	NA
28	Fleming et al. 2005.	UK	Retrospective, multicentre study	None	1994-2000	Children <14 years old admitted for influenza-like illness, acute bronchitis, asthma, or otitis media	NR	Confirmed RSV infection	NR	NR	NR	Acute bronchitis was diagnosed twice as frequently in association with RSV as with influenza. Excess asthma episodes were also evidence in RSV active periods.	RSV causes more illness than influenza.	3	11	NA
29	Flores et al. 2004.	Portugal	Prospective, single centre study	None	2000-2002	Children < 3 years diagnosed with bronchiolitis	NR	Confirmed RSV infection	225	M:F 1.6:1	Median 5 months	RSV was isolated in 60.9% of patients, predominantly in the hospitalized group. RSV-positive patients were younger, had more severe clinical forms of bronchiolitis. Higher clinical severity scores occurred in association with first wheezing episodes, overcrowded households, attendance at day-care centres, or prematurity (<36 weeks).	Further multicentre regional studies are desirable to confirm prophylactic and therapeutic guidelines.	1	9	NA
30	Fournel et al. 2010.	France	Retrospective, single centre study	None	1998-2005	Children <15 hospitalized with rotavirus or RSV infection	NR	Confirmed RSV infection	1886	M: 55.6%	8.6 months	981 cases of RSV were identified. Both RSV and rotavirus infections significantly decreased in frequency from 1998-2005. 46.3% of rotavirus infections were nosocomial compared to only 5.3% of RSV infections.	The decrease in infection rates over the epidemic period could be explained by improved hygiene and attention from healthcare providers.	2	10	NA
31	Frassanito et al. 2015.	Italy	Prospective, single centre study	None	2009-2014	Children hospitalized for ARTI	NR	Virologically confirmed RSV infection	273	NR	Median 2.9 months	RSV was identified as the most common cause of bronchiolitis (148/273). RSV infants had wheezing more frequently than hRV infants. Risk factors for ARTIs were the presence of siblings, parental asthma and smoking cohabitants.	Environmental and genetic factors contribute to ARTIs. RSV infants had more long lasting sequelae.	2	3*	NA
32	Fryzek et al. 2011.	USA	Retrospective, multicentre study	None	1998-2006	Children <24 months hospitalized for RSV as recorded in the US NHDS database	NR	ICD-9 codes of RSV; acute bronchiolitis due to RSV; acute bronchiolitis unspecified; pneumonia due to RSV	1,102,293	M: 57%	40% <3 months; 28% 3-6 months	RSV hospitalizations were significantly higher in infants aged <3 months and infants aged 3-6 months. Similar results were observed when the definition of RSV hospitalization was expanded to include unspecified acute bronchiolitis hospitalizations.	The highest proportion of RSV hospitalization was among the 3-6-month age group. Analysis of the impact of RSV season, clinical practices, and other factors on these trends is warranted.	2	10	NA
33	García et al. 2010.	USA	Retrospective, single centre study	None	2002-2007	Children <24 months hospitalized for bronchiolitis	NR	Confirmed RSV infection	5233	NR	6.3 months	RSV was identified in 54.3% of cases. RSV hospitalizations increased from 2002-2007. RSV hospitalizations began at the end of October or November, peaked in December and January, and ended in March or April. RSV infections were linked to increased length of hospitalization, oxygen, intubation and length of stay in the PICU.	RSV infection and prematurity, regardless of etiology, are independent risk factors for severe bronchiolitis.	3	11	NA
34	García García et al. 2001.	Spain	Prospective, single centre study	None	6 seasons	Children <24 months hospitalized for bronchiolitis	NR	Confirmed RSV infection	617	M:F 1.6:1	269 days	83.6% of infections were due to RSV. Co-infection was identified in 6.2% of RSV-infected patients. RSV-positive infants were younger, had longer hospital lengths of stay, and higher respiratory distress scores.	RSV-bronchiolitis is the most common cause of LRTIs in Spain. Hypoxia on admission and RSV infection are the most important risk factors for hospitalization length.	1	10	NA

35	García García et al. 2012.	Spain	Prospective, single centre study	None	2004-2010	Children <14 years old hospitalized for pneumonia	NR	Virologically confirmed pneumonia	884	M: 51%	28.5 months	Community-acquired pneumonia had a clear seasonal pattern with an autumn peak in November-December and a later peak in February-April. RSV was the most common virus identified (30.5% of cases). RSV infection was especially prevalent in infants <18 months (59.8% of cases).	Prevalence of viral infections underlying community-acquired pneumonia is high. Dominance of different viruses vary with age.	1	11	NA
36	Gijtenbeek et al. 2015.	Netherlands	Retrospective, multicentre study	None	Infants born 2002-2003	Community-based cohort of children aged 43-49 months	Children with major congenital malformations, congenital infections, and syndromes	Confirmed RSV infection	62	M: 65.8%	NR	RSV hospitalization rates were higher in early/moderate preterm infants compared to full-term infants. Moderate preterms were hospitalized at an earlier age than early preterms. Disease severity was equal in all groups. Risk factors for RSV were younger age, lower birth weight, shorter GA and passive smoking.	The rates of RSV hospitalization are higher in moderate preterms than full-term infants and not different between moderate and early preterms. No difference in disease severity was observed.	3	10	NA
37	Gil-Prieto et al. 2015.	Spain	Retrospective, multicentre study	None	1997-2011	Children <5 years hospitalized for bronchiolitis	Other respiratory issues, congenital pathologies	Confirmed RSV infection	326,175	M: 59.2%	5.8 months	A total of 326,175 hospital discharges for children <5 years of age were reported. The annual RSV incidence was 1072 per 100,000. Mean length of hospital stay was 5.7 days. The highest rate of hospitalization was during the first year of life with a rate of 4136/100,000. Hospitalization decreased significantly with age. Hospitalization and mortality rates were significantly higher in males.	RSV infections in children <5 years pose a significant health threat in Spain, particularly in infants. The development of therapeutic guidelines focused in children with comorbidities may help reduce the burden of RSV.	2	11	NA
38	Gooskens et al. 2014.	Netherlands	Retrospective, single centre study	None	2006-2007	All children <18 years seen at the ED for ARTI	Children not sampled within 48 hours of arrival	Confirmed RSV infection	274	NR	NR	A total of 86% of hospitalized children were aged <3 years. RSV was detected in 69 cases as a single infection. RSV was more common in younger children, and was associated with oxygen support.	RSV is a frequent cause of morbidity in young children presenting with an ARTI. Symptoms are not discriminant and require diagnosis with PCR.	2	11	NA
39	Grimaldi et al. 2002.	France	Retrospective, multicentre study	None	1999-2000	Infants hospitalized for RSV bronchiolitis	NR	Confirmed RSV infection	484	M: 59.6%	5 months	19.6% of infants hospitalized for RSV infection were born premature (GA <37 weeks). 68.3% were aged <6 months at admission. Duration of hospitalization was a mean 7.3 days. 31 infants (6.4%) were admitted to PICU, 8 (1.7%) needed mechanical ventilation and 1 (0.2%) died.	'At risk' populations for severe RSV bronchiolitis with PICU admission should include all very preterm infants with respiratory distress syndrome. These data could provide indications for passive immunoprophylaxis of RSV.	1	8*	NA
40	Hacimustafaoğlu et al. 2013.	Turkey	Retrospective, multicentre study	None	2010-2011	Children <2 years hospitalized with LRTI and impaired general state	Lack of parental consent, current antibiotic treatment, palivizumab prophylaxis or immunoglobulin therapy	Confirmed RSV infection	671	M: 59.9%	6.97 months (male) 6.4 months (female)	37.9% of bronchiolitis/pneumonia admissions were due to RSV infection. The annual hospitalization rates due to RSV LRTI, acute bronchiolitis and pneumonia were 7.8/1000, 4.6/1000 and 3.2/1000, respectively, in children ≤2 years of age.	RSV is a very important cause of lower respiratory infections in children ≤2 years of age and occurred most frequently in those 0-3 months of age.	2	10	NA
41	Haerskjold et al 2016.	Denmark	Retrospective, multicentre study	None	1997-2003	Children <2 years hospitalized with confirmed RSV infection	NR	Confirmed RSV infection	428,117	NR	NR	Chronic disease, asthma hospitalization prior to RSV hospitalization and siblings were identified as risk factors for RSV. In term children, maternal age, smoking and asthma, single parent status, small for GA, birth by cesarean section, male gender and day care attendance were also identified as relevant factors.	Stratifying infants by gestational age groups varies the effects of different risk factors. This may be used to create individual risk profiles for infants.	2	11	NA
42	Hall et al. 2013.	USA	Prospective, multicentre study	None	2000-2005	Children <2 years hospitalized with confirmed RSV infection	NR	Confirmed RSV infection	2149	M: 56.7%	NR	26% of ARI admissions analysed were due to RSV, with a rate of 5.2/1000 children. Infants aged <1 month had the highest rate of hospitalization: 25.9/1000.	Young infants are at greatest risk of RSV hospitalization. Four fifths of RSV-hospitalized infants were previously healthy.	1	11	NA

43	Hall et al. 2009.	USA	Prospective, multicentre study	None	2000-2004	Children <5 years hospitalized or presenting to the ED with ARTI	NR	Confirmed RSV infection	5067	M: 43-47%	NR	18% of patients had RSV, equating to 20% of hospitalizations, 18% of ED visits and 15% of doctors' office visits. Prematurity and young age were identified as independent risk factors. Estimated rates of RSV office visits were x3 that of EDs.	RSV infection is associated with substantial morbidity in US children in both in- and out-patient settings. Most children were previously healthy, suggesting that control strategies targeting only high-risk children will have limited effect on total disease burden.	1	11	NA
44	Hasegawa et al. 2013.	USA	Retrospective, multicentre study	None	2000-2009	Children <2 years hospitalized with bronchiolitis	NR	ICD-9 codes for bronchiolitis	544,828	M: 58-59%	82-87% of admissions were <12 months	From 2000-2009, the incidence rate of bronchiolitis decreased from 17.9 to 14.9/1000 person-years. Hospital length of stay did not change significantly. Multi-variable-adjusted mortality decreased significantly over the study period.	Bronchiolitis admissions in children <2 years of age declined from 2000-2009.	2	11	NA
45	Hervás et al. 2012.	Spain	Retrospective, single centre study	None	1995-2006	Children <2 years hospitalized for acute bronchiolitis	NR	ICD-9 codes for acute bronchiolitis; RSV bronchiolitis; RSV pneumonia; RSV not otherwise specified.	2384	M: 58%	3.9 months	77% of admissions were in infants aged <6 months. 62.7% of bronchiolitis admissions were for RSV. The majority of RSV admissions occurred between November and March. RSV was associated with longer hospital stays, increased risk of ICU admission, and oxygen us	Premature infants of <32 wGA, CHD, and atelectasis/condensation were the main risk factors for ICU admission in both RSV and non-RSV bronchiolitis. The study supports that RSV bronchiolitis seems to be a more severe disease than that caused by other viruses.	3	11	NA
46	Iwane et al. 2013.	USA	Prospective, multicentre study	Racial disparities in RSV	2002-2009	Children <5 years hospitalized with ARTI	Children of races other than black or white, including multiracial children, were excluded because of low numbers.	Confirmed RSV infection	4329	Black male: 60% White male: 53%	Black infants: 51% <6 months White infants: 61% <6 months	19% of black children and 29% of white children had RSV. Hospitalizations for respiratory infection were higher among black children than among white children <12 months but higher for black children aged >12 months. Black children were significantly more likely to have a history of asthma/wheezing (28% vs.18%) but not more severe illness.	Racial disparities in RSV burden require further study.	3	11	NA
47	Iwane et al. 2004.	USA	Prospective, multicentre study	None	2000-2001	Children <5 years hospitalized with febrile or ARTI	Known non-respiratory cause for hospitalization; respiratory symptom duration >14 days; transferred from another hospital where they would have been already enrolled; discharged from a hospital in the previous 4 days; newborns who had never left the hospital.	Confirmed RSV infection	592	M: 55-57%	61-69% <1 year	RSV was identified in 20% of cases, equal to an admission rate of 3.5/1000 children. Age <1 year, black or Hispanic ethnicity, male gender, or chronic comorbidities were associated with higher admission rates.	Children <5 years, and particularly those <1 year have a high burden of hospitalization from RSV and influenza.	1	11	NA
48	Jansson et al. 2002.	Sweden	Retrospective, multicentre study	None	1998-1999	Children <1 year hospitalized for the first time for bronchiolitis	NR	Wheeze and signs of viral infection with or without positive RSV test	187	M: 60%	NR	102/187 hospitalizations were due to RSV infection. Admission rate was significantly correlated to immigrant status, and income.	Socioeconomic factors may have a significant influence on hospitalization rate in bronchiolitis during infancy.	3	11	NA
49	Johnson et al. 2012.	USA	Retrospective, multicentre study	None	1999-2010	Hospitalization for respiratory or RSV-like condition	Patients with no admission diagnoses	ICD-9 confirmation of RSV	NR	NR	NR	RSV rates varied from 37.2-71.4/100,000 over the years assessed. Overall male RSV rate: 62.87/100,000 population, overall female RSV rate: 47.18/100,000 population. 44% of cases occurred in infants aged 0-3 months. Almost all (96.1%) RSV infections were community-acquired. The RSV season extended from November-March.	Immunoprophylaxis should be given to high-risk infants in time with the RSV season.	3	10	NA

50	Karr et al. 2009.	USA	Retrospective, multicentre study	Air pollution exposure	1997-2003	Infants with a hospitalization discharge record during the first year of life for bronchiolitis	NR	ICD-9 codes for RSV bronchiolitis or other bronchiolitis	3124	NR	NR	Risk estimates for air pollution exposure (and longer exposures) prior to bronchiolitis hospitalization were stronger for RSV than non-RSV cases. Risk was also increased for infants living within 150 m of a highway.	There may be a modest increased risk of bronchiolitis from chronic traffic-derived particulate matter exposure, particularly for infants born just before or during peak RSV season.	2	12	NA
51	Kristensen et al. 1998.	Denmark	Retrospective, multicentre study	None	1995-1996	Infants < 6 months hospitalized for RSV infection	NR	Confirmed RSV infection	459	M: 56.4%	NR	The incidence rate of RSV was 34/1000/seasons, equivalent to 32/1000/season in term infants and 66/1000/season in preterm infants. 15.9% of hospitalized infants had comorbid conditions and were more likely to suffer more severe courses of infection.	RSV infection was reported as milder in East Denmark than elsewhere, but RSV continues to be a considerable burden to the Danish healthcare system.	3	10	NA
52	Kristensen et al. 2015.	Denmark	Retrospective, multicentre study	Cesarean birth	1997-2003	All infants <24 months hospitalized for RSV infection	Infants with congenital chronic conditions	Confirmed RSV infection	399,175	NR	NR	10,758 RSV hospitalizations included. Adjusted hazard ratios for RSV hospitalization in children born by acute cesarean and by elective cesarean were 1.09 (1.01–1.17) and 1.27 (1.19–1.36), respectively. The effect of elective cesarean remained unchanged throughout the first 2 years of life. The effect of acute cesarean on RSV risk was only present in the second year of life.	Delivery by cesarean section is associated with an increased risk of hospitalization for RSV infection. This effect continues at least throughout the first 2 years of life.	2	11	NA
53	Lanari et al. 2002.	Italy	Prospective, multicentre study	None	1999-2000	Infants <2 years hospitalized for LRTI	NR	Confirmed RSV infection	1232	M: 59.4%	Median 5 months	40.6% of infants were RSV-positive. The peak of the RSV epidemic occurred in February, with the lowest prevalence in November. A high proportion of study subjects had low birth weight and low GA. A higher prevalence of RSV infection was found in patients ≤33 weeks or 34–35 weeks GA. RSV infection was associated with more severe respiratory impairment.	RSV is an important cause of LRTI in Italy. GA, birth order, birth weight, and exposure to tobacco smoke affected the prevalence and severity of RSV-related disease.	1	11	NA
54	Langley et al. 2003.	Canada	Retrospective, multicentre study	None	1980-2000	Children ≤4 years hospitalized for bronchiolitis as retrieved from the Canadian Institute of Health Information	NR	ICD-9 codes for bronchiolitis	NR	NR	NR	The rate of hospital admission increased in all provinces over the 2 decades for all age groups but was highest in those aged <6 months. The mean length of stay decreased from 5.4 to 3.1 days (mean rate of decrease, 0.13 days/year).	This consistent trend over almost 2 decades may indicate a change in disease prevalence or severity.	2	10	NA
55	Lapeña et al. 2005.	Spain	Retrospective, multicentre study	Climate	1995-2000	Infants <2 years hospitalized for RSV infection	NR	Confirmed RSV infection	167	M: 56.9%	NR	Weeks with >1 RSV admission demonstrated significantly lower levels of humidity and lower temperature than weeks with no RSV admissions.	Low absolute humidity is an independent risk factor for RSV infection.	3	10	NA
56	Leader et al. 2003.	USA	Retrospective, multicentre study	None	1997-2000	Infants <1 year hospitalized with bronchiolitis or pneumonia during the RSV season	NR	ICD-9 codes for bronchiolitis or pneumonia	718,008 ED visits	M: 56%	76% <6 months	From 1997-2000, 718,008 ED visits for LRTI during the RSV season (equal to a rate of 22.8/1000) were recorded, and 29% were admitted. RSV bronchiolitis was the leading cause of infant hospitalization. Low birth weight and prematurity significantly increased RSV-associated mortality rates.	RSV is a major cause of infant morbidity and mortality. Severe RSV is highest among infants of black mothers and Medicaid-insured infants. Prematurity and low birth weight significantly increase RSV mortality rates.	2	11	NA
57	Liese et al. 2003.	Germany	Prospective, multicentre study	Prematurity	1998-2000	Infants with a GA of <35 weeks previously admitted to neonatal intensive care	NR	Confirmed or probable RSV infection	717	M: 52.3%	NR	The risk of a subsequent RSV infection in preterm infants released from NICU was 5.2%. This increased to 15% in premature infants with CLD. Independent risk factors for RSV were male gender, CLD, discharge between October-December, day care attendance of siblings.	Risk of rehospitalization for RSV in preterm infants in Germany is low.	3	11	NA
58	Lozano et al. 2012.	International	Retrospective analysis	None	1980-2010	All causes of death	NR	NR	NR	NR	NR	RSV is responsible for 2.3% of deaths <28 days of age; 6.7% of deaths between 28-364 days, and 1.6% of deaths in children aged 1-4 years.	RSV is one of the most important identified causes of post-neonatal lower respiratory infections.	2	NA	NA

59	Martínez-Roig et al. 2015.	Spain	Prospective, single centre study	Viral co-infection	2009-2010	Infants hospitalized for respiratory infection	NR	Virologically confirmed RSV infection	385	NR	44.94% <12 months	RSV was the most commonly detected infection (36.1%). Coinfection of 2 or more viruses was identified in 61.81% of patients. Hospitalization and oxygen requirement decreased with increasing number of coinfections.	An inverse relationship was found between number of viruses detected, need for oxygen therapy and hospitalization days. More studies and improved detection techniques are needed to define the role of viral coinfections in respiratory disease severity.	2	11	NA
60	McCormick et al. 2002.	Ireland	Retrospective, single centre study	None	1994-1999	Children previously admitted to neonatal intensive care	Children not tested for RSV	Confirmed RSV infection	136	M:F >35 weeks-28:28; ≤35 weeks-39:41; ≤32 weeks-26:30	>35 weeks median 4 months ≤35 weeks median 5 months ≤32 weeks median 5.5 months	Characteristic seasonal peaks of RSV infection with inter-seasonal variability were observed. 86.9% of infants were hospitalized with RSV <12 months of age. A calculated readmission rate of 5.4% for all post-NICU infants, and 6.4% for infants ≤35 weeks, was found.	Using economic arguments alone, the cost of routine administration of Palivizumab to ex-NICU <35-week infants is prohibitive.	2	10	NA
61	Medici et al. 2006.	Italy	Prospective, multicentre study	None	2000-2004	Children <4 years admitted to the ED for respiratory infection	NR	Confirmed RSV infection	2110	M: 55%	17 months	20.5% of 2,110 children tested were positive for RSV infection. 49% of children were hospitalized for RSV disease. The peak of infection was in February.	RSV infection periodicity may be useful for scheduling RSV prophylaxis and for hospital resource management in Italy.	1	10	NA
62	Mlinaric-Galinovic et al. 2009.	Croatia	Retrospective, multicentre study	None	1994-2005	Children <10 years admitted to hospital with ARTI	NR	Confirmed RSV infection	3435	M: 2055; F: 1380	59.4% <6 months	RSV was identified as the most common cause of respiratory infections (32.3%). The incidence of RSV infection declined with age (42 – 16%, birth – 5 years), while the incidence of other viruses retained a similar range. RSV was most prevalent in infants aged 0-6 months (59.4%)	The overall prevalence of RSV infection in Croatian children with acute respiratory illness has remained stable over the past decade. RSV was found to be the most common cause of bronchiolitis throughout childhood.	2	11	NA
63	Müller-Pebody et al. 2002.	UK	Retrospective, multicentre study	None	1995-1998	Children <5 years hospitalized for LRTI	NR	Confirmed RSV infection	127,298	NR	NR	76.8% of lower respiratory infections were unspecified; RSV was identified in 17.5% of the remaining cases. An estimated 74.8% of 'unspecified bronchiolitis' admissions and 16.3% of 'unspecified pneumonia' admissions were RSV-related. The mean annual incidence of RSV hospitalizations was 28.3/1000 children <1 year old, and 1.3/1000 children 1–4 years.	The greater burden of RSV infection than indicated through discharge data is revealed through applying simple statistical methods.	2	11	NA
64	Murray et al. 2014.	UK	Retrospective, multicentre study	None	2007-2008	Birth cohort of infants followed up to 1 year of age	Hospitals with insufficient records	Confirmed RSV infection	296,618	Male 51%	Median 120 days	7189 infants were hospitalized with a primary diagnosis of bronchiolitis, equal to 24.2/1000 infants. 28% of these were coded as RSV-related. Admission rates were higher among preterm infants (47.3/1000 preterm infants vs 22.4/1000 for term infants). Down's syndrome and cerebral palsy also served as risk factors for bronchiolitis admission.	Most (85%) infants who are admitted to hospital with bronchiolitis in England are born at term, with no known predisposing risk factors for severe RSV infection, although risk of admission is higher in known risk groups.	3	11	NA
65	Nielsen et al. 2003.	Denmark	Retrospective, multicentre study	None	1990-1994	Children <2 years admitted with confirmed RSV infection	NR	Confirmed RSV infection	1252	M: 58.9%	NR	The average risk of RSV hospitalization during the first 2 years of life was 1.9%. Mean duration of hospitalization was 4 days, decreasing slightly with increasing age. There was a sharp peak of incidence from December through March every year. Age, sex, birth month, GA, birthweight, presence of a sibling up to 5 years older, and maternal smoking during pregnancy were identified as risk factors for RSV.	90% of cases and 80% of controls had one or more risk factors. Several factors were found to increase the risk of RSV hospitalization, but all effects were small and no single specific factor was identified to explain RSV hospitalization of the minority of children.	3	11	NA

66	Nokes et al. 2009.	Kenya	Prospective, single centre study	None	2002-2007	Children <5 years hospitalized for severe pneumonia	Infants with neonatal tetanus	Confirmed RSV infection	7359	Male 56%	Median 9 months	RSV prevalence within children hospitalized for pneumonia was 15%. This increased to 20% among infants. RSV prevalence was 27% during epidemics, increasing to 32% among infants). RSV infection was not associated with life-threatening clinical features or concurrent serious illnesses. The associated mortality was 2.2%.	Rates of hospital admission with RSV-associated pneumonia are substantial and comparable to estimates from the United States. However, the estimates underestimate the burden in the full community.	1	11	NA
67	Ortiz de Lejarazu et al. 2012.	Spain	Retrospective, multicentre study	None	1993-2010	Children hospitalized with respiratory symptoms	NR	Confirmed RSV infection	4103	NR	NR	40.1% of samples were confirmed RSV positive. Almost 90% of confirmed cases appeared in patients <2 years old, and 59.5% in <1 year olds. The infection trend fluctuated every 2-4 years with higher rate in 2002 and 2003. Epidemic periods were detected from September-March with highest values in January and lowest values in July.	Epidemiological data, i.e. RSV prevalence in respiratory samples and distribution of cases by age, was similar to those obtained in previous studies.	3	10	NA
68	Resch et al. 2000/2	Austria	Prospective, single centre study	None	1999-2000	Children <2 years hospitalized for viral respiratory tract infection	NR	Confirmed RSV infection	280	NR	3.5 months	21% of hospitalized infants were confirmed RSV positive. 12% infants with RSV were preterm, 5% had CHD. RSV infections peaked in March (45%). Infants with RSV were significantly younger, had more severe respiratory infections, longer hospitalizations, more days with oxygen and respiratory support, and more frequent requirements for bronchodilators and corticosteroids.	In young and preterm infants, RSV contributed to increased hospitalization and more severe disease course.	1	11	NA
69	Rossi et al. 2007.	Italy	Retrospective, multicentre study	None	2000-2004	Children <4 years hospitalized for RSV LRTI	Children who received prophylaxis	Confirmed RSV infection	145	M: 42.1%	Median 3.5 months	Bivariate analysis identified 7 risk factors for RSV hospitalization: number of children in the family, chronological age at RSV season onset, birth weight and GA, birth order, day care attendance, previous RSV infections. Logistic regression identified 3 risk factors: chronological age at RSV season onset; birth weight; birth order.	Independent from the RSV seasonality, specific host/environmental factors can be used to identify children at greatest risk for hospitalization for RSV infection.	2	12	NA
70	Salvador García et al. 2012.	Spain	Prospective, single centre study	None	2008-2009	Children <18 months hospitalized for bronchiolitis	Previous episodes of bronchiolitis or nosocomial infection	Confirmed RSV infection	235	NR	3.4 months	A total of 287 viruses were detected in nasopharyngeal aspirates from 204 infants. RSV was the most frequently detected virus (56.4%). Co-infections were found in 36% of children.	Respiratory viruses were detected in most children <18 months-old hospitalized with bronchiolitis, and 36% showed a mixed infection.	1	10	NA
71	Sangaré et al. 2006.	USA	Retrospective, multicentre study	None	1999-2003	Infants <1 year hospitalized with RSV-associated illness	NR	ICD-9 codes for RSV bronchiolitis	45,330	NR	NR	The RSV hospitalization rates per 1000 live births for MediCal payers by race/ethnicity were: non-Hispanic white (34.9), African-American (27.9), Hispanic (21.8), Asian/Pacific Islander (12.5), and American Indian/Alaska Native (12.2).	RSV was the leading cause of infant hospitalizations in California between 1999 and 2003. RSV hospitalization rates were highest among non-Hispanic white MediCal insured infants.	3	10	NA
72	Santibanez et al. 2012.	Canada	Retrospective, multicentre study	None	2008-2010	Children <19 years hospitalized for LRTI	NR	ICD-10 codes for LRTI	4588	NR	NR	RSV infection was responsible for 26.1% of diagnosed LRTI in children <19 years, and 48.1% in infants <1 year. In infants <1 year, RSV was the most common primary diagnosis (44.4%).	Pediatric LRTIs, specifically in infants <1 year and high risk infants, are a significant burden on acute care in British Columbia.	3	11	NA
73	Schuurhof et al. 2010.	Netherlands	Prospective, multicentre study	Genetic polymorphisms	1992-2006	Children hospitalized for RSV infection	NR	Confirmed RSV infection	470	M: 264; F: 206	60% < 3 months	One single-nucleotide polymorphism was identified with a gender-specific significant association with RSV infection, severe enough to require hospitalization. This structural polymorphism was associated with increased susceptibility to severe RSV infection in boys, and decreased susceptibility in girls.	The IL-9 genetic polymorphism has an opposite effect on the risk of severe RSV bronchiolitis in boys and girls.	2	11	NA

74	Shay et al. 1999.	USA	Retrospective, multicentre study	None	1980-1996	Children <5 years hospitalized for bronchiolitis	NR	ICD-9 codes for respiratory infection	1,648,281	NR	57%< 6 months	Bronchiolitis admissions peaked during the winter months. Bronchiolitis hospitalizations in infants <6 months increased by 239% over the study period. Males were 1.6 times more likely to be hospitalized. This was unaffected by year or age group.	From 1980-1996, bronchiolitis hospitalization rates increased substantially. RSV-bronchiolitis hospitalizations may be greater than previously estimated.	2	11	NA
75	Shay et al. 2001.	USA	Retrospective, multicentre study	None	1979-1997	Children <5 years with a cause of death from respiratory disease	NR	ICD-9 code for acute bronchiolitis	1806	NR	Median age at death:3 months	The number of child deaths for all respiratory tract diseases decreased over the study duration: by 1997, rates were >50% lower than the respective 1979 rates. The bronchiolitis-associated mortality rate among children <1 year old and 1-4 years remained relatively stable. Incidence rates remained similar over time (2.2 vs. 2.4 per 100,000 live births in infants; 0.57 vs. 0.65 per 100,000 live births in children <5 years old).	RSV-associated mortality among young children in the USA is lower than previously estimated.	2	11	NA
76	Simon et al. 2008.	Germany	Prospective, multicentre study	None	1999-2005	Children hospitalized with RSV infection	NR	Virologically confirmed RSV infection	1568	M: 56.7-58.3%	Median 113-160 days	Of the confirmed RSV cases, 6% were nosocomial and 94% were community acquired. A significantly higher proportion in the nosocomial group had additional risk factors e.g. prematurity, CLD, history of mechanical ventilation, CHD, and neuromuscular impairment. 55% of nosocomial infections occurred in preterms. Illness severity and total mortality was significantly higher in the nosocomial group.	This study confirms the increased risk of a severe clinical course in nosocomially acquired RSV infection.	1	11	NA
77	Soilly et al. 2012.	France	Retrospective, multicentre study	None	2005-2006	Children < 2 hospitalized for bronchiolitis during the epidemic season	NR	Bronchiolitis admission	467	M: 56.5%	75% <2 months	76% of admitted children were RSV positive. Risk factors for hospitalization included: prematurity (31.9%), respiratory disease (16.5%), CHD (6.4%), receiving mechanical ventilation (11.6%), and BPD at day 28 (3.8%).	A large majority of bronchiolitis cases are positive for RSV.	2	10	NA
78	Stensballe et al. 2006.	Denmark	Prospective, multicentre study	Atopy	1996-2003	Birth cohort up to 18 months	NR	RSV hospitalization	2564	M: 58.7%	46.3% < 6 months	The adjusted RR of RSV hospitalization was 1.11 for maternal atopic dermatitis, 1.72 for maternal asthma, and 1.23 for paternal asthma. Atopic dermatitis in the child was associated with increased risk of subsequent RSV hospitalization in infants <6 months of age. Infrequent wheezing was associated with a RR of subsequent RSV hospitalization of 2.98 and recurrent wheezing with a RR of 5.90.	Asthmatic disposition and wheezing were strong determinants of subsequent RSV hospitalization in Danish children <18 months of age.	2	10	NA
79	Stockman et al. 2012.	USA	Retrospective, multicentre study	None	1997-2006	Children <5 years hospitalized with LRTI	NR	ICD-9 codes for RSV	approx. 5.5 million	NR	NR	RSV accounted for 24% LRTI hospitalizations in children <5 years of age. The RSV hospitalization rate in infants <1 year old was 26.0/1000, with no significant difference between study years. Hospitalization rate was highest in infants <3 months old (48.9/1000), followed by infants 3-5 months old (28.4/1000). An estimated 132,000 to 172,000 RSV hospitalizations occurred annually in children <5 years old.	RSV hospitalization rates remained steady during 1997 to 2006 and were a substantial burden in the United States, especially among infants and young children.	2	9	NA
80	Svensson et al. 2015.	Sweden	Retrospective, multicentre study	None	2004-2011	Children <5 hospitalized with confirmed RSV infection	NR	ICD-9 codes for RSV	1764	M:996 boys: F: 768	Median 2 months	The incidence rate in infants <1 year was 17.4/1,000/year and 0.6/1,000/year in children between 1-4 years. RSV patients occupied a mean of 1,141 hospital beds per year: 65 were treated in ICU, 27 needed ventilator support, 19 needed CPAP, 408 received antibiotics, 399 received steroids and most received a bronchodilator.	The incidence of RSV was high, medication use was high and complications were low. Most infants needing hospitalization for RSV are full-term and have no known risk factors.	1	10	NA

81	Tanner et al. 2012.	UK	Retrospective, multicentre study	Co-infections	2009-2010	Specimens from patients with acute respiratory illness.	Duplicate specimens from the same patient were identified and excluded when the results were the same.	Confirmed viral infection	4821	NR	NR	50.8% of specimens contained at least 1 respiratory virus. 853 were RSV positive. RSV seasonality peaked between November-February. RSV was identified most frequently in patients <5 years. RSV and rhinovirus were the two viruses most commonly detected alongside other viruses.	The co-detection of different respiratory viruses is not random and most associations are reciprocal, either positively or negatively.	2	11	NA
82	Tatochenko et al. 2010.	Russia	Prospective, multicentre study	None	2008-2009	Children <2 years hospitalized for LRTI	Prophylaxis	Confirmed RSV infection	519	M: 61%	8.8 months	38% of hospitalized children tested positive for RSV. The onset of the RSV season occurred in late October, similar to that observed in other northern temperate zones. Peak activity occurred in early April, when 62% of children tested positive for RSV. High risk RSV positive children experienced longer hospitalization, and greater incidence of oxygen supplementation.	The prevalence of serious RSV infections in the Russian Federation is similar to that in other temperate zones of the northern hemisphere.	1	10	NA
83	Thompson et al. 2003	USA	Retrospective, multicentre study	None	1990-1999	National viral surveillance data on RSV and influenza-related deaths	NR	Confirmed RSV infection	~960,000	NR	NR	A mean of 16% of specimens per season tested positive for RSV, compared to 12% for influenza. RSV was associated with an annual mean of 0.8% of deaths. Comparison by age showed that RSV was responsible for an average mean of 2570 deaths in >50 year olds, 124 deaths in <1 year olds, and 13 deaths in 1-4 year olds.	The importance of RSV risk in young children is well recognised.	3	10	NA
84	Thorburn et al. 2006.	UK	Prospective, single centre study	Bacterial co-infection	2002-2005	Children hospitalized to the PICU with RSV bronchiolitis	NR	Confirmed RSV infection	181	M: 103; F:78	Median 1.6 months	42.4% of RSV-positive infants had lower airway secretions positive for bacteria: 36 (21.8%) were co-infected and 34 (20.6%) had low bacterial growth/possible co-infection. All were mechanically ventilated (median 5.0 days). Infants with bacterial co-infection required ventilator support for longer than those with RSV alone. 45% of children received antibiotics prior to intubation. 43% have other comorbidities.	Up to 40% of children with severe RSV bronchiolitis requiring admission to the PICU were infected with bacteria in the lower airways and were at increased risk for bacterial pneumonia.	1	11	NA
85	Thorburn. 2009.	UK	Prospective/retrospective cohort study	Mortality	1999-2007	Children hospitalized to the PICU with RSV bronchiolitis	NR	Confirmed RSV infection	2009	NR	NR	98.5% of 406 RSV-positive patients admitted to PICU required mechanical ventilation; 35 children died. The overall PICU RSV mortality was 8.6% with a standardised mortality ratio of 0.76. The hospital RSV mortality rate was 1.7%. 18 deaths were directly RSV-related (PICU 4.4%; hospital 0.9%). 17 died from non-pneumonitis causes after becoming RSV negative. All RSV deaths had pre-existing medical conditions. Risk factors for death were pre-existing disease (RR 2.36), cardiac anomaly (RR 2.98) and nosocomial RSV infection (RR 2.89).	Pre-existing disease / co-morbidity is associated with a significantly higher risk of death from severe RSV infection. Nosocomial RSV infection is an additional major risk factor for death in children with severe RSV infection.	3	8	NA
86	Trefny et al. 2000.	Switzerland	Retrospective, single centre study	Atopy	1985-1989	Infants <1 year hospitalized with confirmed RSV infection	Nosocomial RSV infection	Confirmed RSV infection	172	NR	4.5 months	Inpatients were younger (4.5 months vs 6.2 months) and had a significantly higher rate of family atopy compared to outpatients. Patients with an atopic background had significantly longer hospitalization (7.4 vs 6.1 days).	Infants with a family history of atopy are at increased risk for severe RSV infection as indicated by higher rates of hospitalization, longer hospital stay, and more frequent occurrence of bronchiolitis.	3	10	NA
87	Tsolia et al. 2003.	Greece	Prospective, multicentre study	None	1997-2000	Children < 1 year hospitalized for the first time with bronchiolitis	NR	Confirmed RSV infection	473	M: F 1.8:1	83%< 6months old	61.5% of infants were RSV positive. 12% of RSV positive infants were premature. RSV positive infants were significantly more likely to have hypoxemia and crackling rales, hyperinflation and atelectasis. 18/21 infants admitted to ICU were RSV positive.	RSV infection has a significant effect on infant morbidity.	1	10	NA

88	Turkish Neonatal Society. 2012.	Turkey	Prospective, multicentre study	Climate	2008-2010	Children <2 years hospitalized with respiratory failure due to LRTI	Use of palivizumab; inability to obtain respiratory samples	Confirmed RSV infection	3464	M: 61.9%	6.4 months	16.9% (585 infants) were RSV-positive; of these, 27.4% were <3 months old. RSV was significantly positively correlated with relative humidity and rainfall, and was negatively correlated with temperature.	Country-specific viral surveillance systems are required to detect respiratory virus activities and to implement health care strategies.	1	10	NA
89	Vandini S et al. 2013.	Italy	Retrospective, single centre study	Air pollution exposure	2007-2010	Patients <2 years admitted for suspected acute RSV infection	NR	Confirmed RSV infection	327	NR	NR	A significant correlation between RSV incidence and mean minimum temperature registered during the same week and the previous weeks was observed. Weekly RSV positive rates were also correlated to the mean air particulate matter concentration of the week before.	RSV epidemic trend in Bologna (Italy) is related to the mean minimum temperature, and the mean air particulate matter concentration.	3	10	NA
90	Vicente et al. 2003.	Spain	Retrospective, single centre study	None	1996-2000	Children <5 years hospitalized for RSV infection	Non-residence in the health district; hospitalization >48h before the aspirate was performed; lack of patient demographic data	Confirmed RSV infection	390	M: 54.1%	83.3% <1 year	The annual hospitalization rate was 37/1000 for infants aged <6 months and 25/1000 for those aged <1 year. The mean length of hospital stay was 5.9 days. 7% of patients required admission to ICU and >50% of these children were aged <1 month	In Spain, community-acquired RSV infection is a highly frequent cause of hospitalization in young children, especially in those aged less than 1 year.	3	11	NA
91	von Linstow et al. 2008.	Denmark	Prospective, single centre study	None	2004-2005	Birth cohort followed through the first year of life	Parents unable to speak Danish/English; infants whose mothers had a serious psychiatric disorder; infants with congenital diseases; planned change of address outside hospital boundaries	Confirmed human metapneumovirus or RSV infection	217	M: 52%	NR	In univariate analysis, <38 wGA, being born in between September-November, increasing paternal age, and wall-to-wall carpeting were significantly associated with RSV infection. Being born in spring protected against infection. In multivariate analysis, <38 wGA, increasing paternal age, wall-to-wall carpeting, and being born in spring remained significant. Smoking (smoking during pregnancy, smoking in the household, number of cigarettes/smokers, maternal or paternal smoking) was significantly associated with increased risk of RSV hospitalization, as were number of children in the home and having older siblings. Full breastfeeding during the first 14 days protected against hospitalization.	This study identified risk factors for mild and asymptomatic hMPV infections in infancy.	1	11	NA
92	Wang et al. 1995.	Canada	Prospective, multicentre study	None	1993	Children <2 years hospitalized for RSV LRTI; any children hospitalized for RSV LRTI with underlying cardiac disease, pulmonary disease, or immunosuppression	Patients >2 years with only asthma	Confirmed RSV infection	698	NR	9.1 months (median 4.9 months)	The mean hospital stay for RSV was 7 days; 110 patients were admitted to ICU, 63 were supported by mechanical ventilation, and 6 died. In addition to previously described risk factors for increased morbidity, aboriginal race (defined by maternal race), a history of apnoea or respiratory arrest during the acute illness before hospitalization, and pulmonary consolidation as shown on the chest radiograph obtained at admission were identified as relevant risk factors.	Patients with underlying diseases and, possibly, those of aboriginal race should be targeted for RSV vaccine trials.	1	11	NA
93	Weigl et al. 2002.	Germany	Retrospective, multicentre study	None	1996-1999	Children <16 hospitalized for ARTI	NR	Confirmed RSV infection	150	NR	74% <1 year	4 patients needed nasal continuous airway pressure and 1 had intermittent ventilation; none died. 20-30% of patients were suspected to have a bacterial co-infection on admission; antibiotics were prescribed in 65% of patients. Average duration of hospitalization was 9 days and was best predicted by young age, the presence of an underlying condition, intercostal retractions and high C-reactive protein on admission.	Bacterial co-infection is the major confounder in burden of disease analyses in RSV. The decision not to administer antibiotics to children hospitalized with RSV can be risky, particularly when there is considerable diagnostic uncertainty.	3	11	NA

94	Weigl et al. 2001.	Germany	Retrospective, multicentre study	None	1996-1999	Children <16 hospitalized for ARTI	NR	Confirmed RSV infection	1241	NR	74% <1 year	150/1,241 (12.1%) of patients tested positive for RSV. 25% of infected children also had an underlying condition. The cumulative incidence rate was higher in premature infants (1,214/100,000 in infants <32 wGA). Birth at <32 wGA and BPD increased RR to 17.8.	Throughout Germany, approx. 10,000 RSV-related hospitalizations in infants can be expected annually. Prematurity is an effect modifier and BPD a strong risk factor for RSV-positive hospitalization in population-based studies.	3	11	NA
95	Zhou et al. 2012.	USA	Retrospective, multicentre study	None	1993-2008	All RSV and influenza hospitalizations	NR	Confirmed RSV infection	NR	NR	NR	The annual mean number of specimens tested for RSV was 76,316, with a mean of 13,558 specimens (19.5%) testing RSV positive each season. RSV hospitalization rates were highest among children aged <1 year (2345/100,000), followed by children aged 1-4 years (178/100,000), and were low at all other ages.	Overall US hospitalization rates for influenza and RSV are similar; however, their age-specific burdens differ dramatically.	2	11	NA
96	Zomer-Kooijker et al. 2014.	Netherlands	Prospective, multicentre study	None	2003-2005 2006-2007	Birth cohort of healthy term infants followed through the first year of life	NR	Confirmed RSV infection	2133	M: 48.4%	NR	26 infants were hospitalized for bronchiolitis, of which 18 were RSV positive. 55.6% of RSV hospitalizations were male. Median neonatal respiratory system compliance was significantly lower and resistance was higher in hospitalized RSV patients compared with non-hospitalized patients. Every 10 mLkPa-1 increase in compliance was associated with 55% less post-RSV wheeze, and each kPaL-1 increase in resistance was associated with 42% more post-RSV wheeze.	This unselected birth cohort study shows for the first time that decreased lung function at birth predisposes to severe RSV disease, and to post-RSV wheeze.	1	11	NA
97	Zuccotti et al. 2011.	Italy	Prospective, multicentre study	None	2008-2009	Children <15 hospitalized with ARTI	NR	Virologically confirmed RSV infection	575	M:F 1.5:1	Median 3 months	51% of samples were positive for viral infection. Of these, 34.1% were RSV positive (196 cases). Viral infections peaked in December-January. RSV accounted for 59.5% of infections in children <6 months. Risk factors for viral infection included exposure to smoking, family history of atopy, and presence of siblings.	The results confirm the primary clinical relevance of RSV, and the involvement of other viruses in infant hospitalization for respiratory infections.	1	11	NA

RSV: respiratory syncytial virus; ICU: intensive care unit; NICU: Neonatal ICU; PICU: pediatric ICU; CHD: congenital heart disease; CLD: chronic lung disease; BPD: bronchopulmonary dysplasia; GA: gestational age; CPAP: continuous positive airway pressure; hBoV: human bocavirus; RV: rhinovirus; RR: relative risk; ED: emergency department; PCR: polymerase chain reaction