Clinical question: Does the use of Adrenaline in inpatients improve clinical outcome compared with placebo

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Hartling, 2003	Meta analysis - 4 studies	96 119	Adrenaline vs placebo	Clinical score change at 30 mins				-0.17[-0.52, 0.18}	NS	+
Hartling, 2003	Meta analysis - 2 studies	**34** **33**	**Adrenaline vs placebo**	**Clinical score change at 60 mins**				**-.52 [-1.00, -0.03]**		+
Hartling, 2003	Meta analysis - 3 studies	58 82	Adrenaline vs placebo	Oxygen saturation change at 30 mins				-0.05 [-0.94, 0.85].	NS	+
Hartling, 2003	Meta analysis - 2 studies	34 33	Adrenaline vs placebo	Oxygen saturation change at 60 mins				0.11 [-0.98,1.21]	NS	+
Hartling, 2003	Meta analysis - 3 studies	58 82		Heart rate at 30 min				4.64 [-1.94,11.23]	NS	+
Hartling, 2003	Meta analysis - 2 studies	34 33		Heart rate at 60 min				5.18 [-9.53, 19.88]	NS	+
Hartling, 2003	Meta analysis - 3 studies	58 82	Adrenaline vs placebo	Respiratory rate at 30 min				0.02 [-3.60,3.65]	NS	+

Hartling, 2003	Meta analysis - 2 studies	34 33		Respiratory rate at 60 min				-1.76 [-6.65, 3.13]	NS	+
Hartling, 2003	Meta analysis - 2 studies	149 143		Length of stay (hours)				-5.9 [-16.23,4.43]	NS	+
Kristiannson refer Hartling, 2003	RCT	15 14		Pallor	4/15	1/14	4.73 [0.46,48.77]			+

Table 2 Clinical question: Does the use of Adrenaline in inpatients improve clinical outcome compared with salbutamol

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Hartling, 2003	Meta analysis - 3 studies	52 53	Adrenaline vs salbutamol	Clinical score change at 30 mins				-0.43 [-1.01, 0.16]	NS	+
Bertrand refer Hartling	RCT	16 16	Adrenaline vs salbutamol	Clinical score change baseline to 30 mons after 24 hours at 60 mins				0.11 [-0.61, 0.83]	NS	+
Bertrand refer Hartling	RCT	16 14	Adrenaline vs salbutamol	Clinical score change baseline to 30 mons after 36 hours at 60 mins				0.55 [-0.18, 1.29]	NS	+
Hartling, 2003	Meta analysis -2 studies	36 39	Adrenaline vs salbutamol	Oxygen saturation change at 30 mins				0.21 [-0.73, 1.14]	NS	+
Hartling, 2003	Meta analysis -2 studies	36 39	Adrenaline vs salbutamol	Heart rate at 30 min				0.83 [-5.56, 7.22]	NS	+
Hartling, 2003	Meta analysis -2 studies	**36** **39**	**Adrenaline vs salbutamol**	**Respiratory rate at 30 min**				**-5.12 [-6.83, -3.41]**		+
Hartling, 2003	Meta analysis -2 studies	66 65	Adrenaline vs salbutamol	Length of stay (hours)				-3.96 [-25.55, 17.62]	NS	+

Table 3: Clinical question: Does the use of Adrenaline in outpatients improve clinical outcome compared with placebo

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	OR	RD	NNT	
Hartling, 2003	Meta analysis - 2 studies	OP 54 51	Adrenaline vs placebo	Clinical score change at 30 mins				-.055 [-1.11, 0.02]		
Barlas refer Hartling, 2003	RCT	**15** **15**	**Adrenaline vs placebo**	**Clinical score change at 60 mins**				**-0.81[-1.56, -0.07]**		Φ Single study Jadad 1
Hariprakash Refer Hartling, 2003	RCT	**38** **37**	**Adrenaline vs placebo**	**Oxygen saturation change at 30 mins**				**2.79 [1.50, 4.08].**		**+** **Single study** Jadad 5
Barlas refer Hartling, 2003	RCT	15 15		Oxygen saturation change at 60 mins				1.20 [-.13,2.53]		Φ Single study Jadad 1
Hariprakash Refer Hartling, 2003	RCT	38 37		Heart rate at 30 min				-2.80 [-9.22,3.62]		**+** Single study Jadad 5
Barlas refer Hartling, 2003	**RCT**	**15** **15**		**Heart rate at 60 min**				**11.80 [5.20, 18.40]**		**Φ** **Single study** **Jadad 1**

Hariprakash Refer Hartling, 2003	**RCT**	**37 37**	**Adrenaline vs placebo**	**Respiratory rate at 30 min**				**-4.54 [-8.89,-0.19]**		**+ Single study jaded 5**
Hartling, 2003	Meta analysis - 2 studies	**31 29**		**Improvement**	**23/51**	**5/29**	**25.06 [4.95,126.91]**		**2**	**Φ**
Hartling, 2003	Meta analysis - 2 studies	53 52		Admissions	19/53	26/52	0.51 [0.18, 1.42]			+

Table 4: Clinical question: Does the use of Adrenaline in outpatients improve clinical outcome compared with salbutamol

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	OR	RD	NNT	
Hartling, 2003	Meta analysis - 2 studies	54 53	Adrenaline vs salbutamol	Clinical score change at 30 mins				0.08 [-0.84, 0.69]		+
Hartling, 2003	Meta analysis - 3 studies	114 114	Adrenaline vs salbutamol	Clinical score change at 60 mins				-0.21 [-0.74, 0.32]		+
Hartling, 2003	Meta analysis -2 studies	54 53	Adrenaline vs salbutamol	Clinical score change at 90 mins				-0.32 [-0.82, 0.19]		+
Hartling, 2003	Meta analysis -2 studies	65 67	Adrenaline vs salbutamol	Oxygen saturation change at 30 mins				1.31 [-3.15, 5.76]		+
Hartling, 2003	**Meta analysis-3 studies**	**80 82**		**Oxygen saturation change at 60 mins**				**1.91 [0.38, 3.44]**		+
Menon, 1995 Refer Hartling	RCT	20 21		Oxygen saturation change at 90 mins				-0.68 [-2.39, 1.03]		+
Menon Refer Hartling	RCT	20 21		Heart rate at 30 min				-1.00 [-11.41, 9.41]		+
Hartling, 2003	Meta analysis -3 studies	80 82		Heart rate at 60 min				6.25 [-3.64, 16.13]		+

Menon, 1995 Refer Hartling	**RCT**	**20 21**		**Heart rate at 90 min**				**-14.00 [-22.95, -5.05]**		+
Menon, 1995 Refer Hartling	RCT	20 21	Adrenaline vs salbutamol	Respiratory rate at 30 min				-6.00 [-15.50, 3.50]		+
Hartling, 2003	**Meta analysis-2 studies**	**65 67**		**Respiratory rate at 60 min**				**-7.76 [-11.35, -4.17]**		+
Menon, 1995 Refer Hartling	RCT	20 21		Respiratory rate at 90 m				-5.04 [-12.04, 2.04]		+
Hartling, 2003	Meta analysis -2 studies	66 65		**Improvement**	**42/59**	**25/61**	**4.51 [1.93, 10.53]**	**3.3**		**Φ**

Hartling, 2003	Meta analysis -4 studies	66 65		Admissions	29/114	45/114	0.40, [0.12,1 .33]		NS	+
Menon, 1995 Refer Hartling	RCT	**20** **21**		**Pallor**	**10/20**	**3/21**	**6.00 [1.33, 27.00]**		**2.7**	+

Clinical question: which antibiotic, in what dose is best for ALRI in infants

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Amir, 1996	RCT, non blinded	62, 6 mo to 6 yrs, Israel, 55% admitted	All 2 doses ceftriaxone, then Cefixime 50/mg/kg/d od	Clinical response after 48 hrs oral abs	28/29	29/33				Φ
Catchup, 2002	RCT	1471, non severe pneumonia, 2-59 mths, Pakistan	24 mg/kg cotrimoxazole 25mg/kg amoxil both bd x5	Time to clinical improvement Clinical failure	81.1% success	83.9%	0.83 (0.06-1.08)			+
Friis B 1984	RCT open label	136, 1 month to 6 years, Denmark, 1980s, mixture of bronchiolitis and pneumonia, 53% viral confirmed	ampicillin 100mg/kg/d orally in 3 doses for 6 days for those < 2 years or penicillin V for those over 2 yrs vs no antibiotics	Mean LOS (SE) Pulmonary healthy day 3	4.9(0.2) 40%	5.6(0.4) 43%		NS NS		Φ
Harris, 1998	RCT	456, 197< 5yrs, US	Azithromycin 10mg/kg then 5 mg/kgX5 days vs Amoxil-clav 40mg/kg/d for < 5 yrs	Clinical resolution at 15-19 days Clinical success at 4-6 weeks Adverse effects	< 5 yrs 67.2% cure 85.1% 12.1%	 66.7% 85.4% 42.3%				Φ
ISCAP, 2004	RCT	2188, 2-59 months, India, outpatients, WHO defined non severe pneumonia	Amoxicillin 125 mg 3 days vs 5 days	Treatment success Relapse rate	89.5% 5.3%	89.9% 4.4%		0.4 (-2.1 to 3.0)		+
MASCOT, 2002	RCT	2000, 2-59 months, Pakistan outpatients, WHO defined non severe pneumonia	Amoxicillin 15mg/kg 3 days vs 5 days	Treatment failure Relapse rate				0.7% (-1.8-3.2) 0.1% (-0.6 to 0.8)		+
Strauss 1988	RCT	595: 2-59 mths, OP pneumonia, Pakistan, CXR +ve in 26%	24 mg/kg cotrim bd amoxicillin 15mg/kg tds	Inpatient therapy reqd Evidence pneumonia at fu	23% failure Under 1yr 29%	15% 19%	 1.83 (1.06 to 3.14	 10%		+
Tsarouhas, 1998	RCT, single blind	170, 6 mo to 18 yrs, US, outpatients, seen in ED, radiological pneumonia	Amoxicillin 50mg/kg/ day in 3 dose vs IM procaine penicillin G 50,000u/kg	Temperature >= 38.5 at fu Ill appearance Increased RR Failed all 3 criteria Hospitalised	10% 13% 26% 4% 6%	13% 12% 22% 5% 6%		P=0.63 P=0.76 P=0.53 P=1.00 P=1.00		+

Clinical question: Do antibiotics improve clinical outcome compared with placebo in acute bronchiolitis

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	OR	RD	NNT	
Field 1966	RCT	25 24	Ampicillin Placebo	Duration of symptoms in hospital Total duration of symptoms	6.36 9.54	6.05 9.7		0.31d		Φ
Friis B 1984	RCT open label	136, 1 month to 6 years, Denmark, 1980s, mixture of bronchiolitis and pneumonia, 53% viral confirmed	ampicillin 100mg/kg/d orally in 3 doses for 6 days for those < 2 years or penicillin V for those over 2 yrs vs no antibiotics	Mean LOS (SE) Pulmonary healthy day 3	4.9(0.2) 40%	5.6(0.4) 43%		NS NS		Φ

Clinical question: What is the rate of positive blood culture in pneumonia in infancy

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Davies, 1996	Cohort	Age less then 6 months admitted to Hospital for sick children, Toronto, Included 68 patients with pneumoia		Blood culture	1.5 % =1 patient- strep pneumoniae					+
Djeretic, 1998	Cohort	251, 173 < 2yrs, all < 5 yrs, UK admissions		Blood culture results in CAP (92% tested)	6%					Φ
Drummond, 2000	Cohort	136 patients admitted with CAP, NE England, age 0-16 years		Blood culture	1/163 Gp A strep Probable pathogen found in 51%, 37% viral					+
Grant, 2001	Auckland	Retrospective cohort, Starship admissions with pneumonia		Blood culture result	359/387 pneumonia admissions had bl cult. 10 positive (3%), 6 pathogenic, all strep pneumoniae					+
Hickey, 1996	Retrospect ive cohort	939 ED patients with radiographic pneumonia , 409 blood cultures		Blood culture positive for pathogen	11 (2.7%) positive for pathogens- 10 strep pneumoniae, 1 H influ no management changes					Φ
Juven 2000	3 yr prospectiv e study of CAP in hospitalise d in Finland	254 patients, 125 had blood cultures		Etiology of pneumonia	1 positive blood culture for S pneumoniae. 62% were viral infections					+
Tsarouhas, 1998	USA	RCT, routine blood culture as part of study, age 6 mo to 18 yrs, CXR diagnosis of pneumonia, outpatients sen in ED		Blood culture result	5/166 tested out of population of 170 grew organism, only 2 regarded as causative, both Strep pneumoniae					+
Wubbell, 1999	Clinical trial	174 patients, age 6 months to 16 years, ambulatory patients with CXR and clinical community acquired pneumonia; Dallas		Blood culture- all patients	0%					Φ

Clinical question: Does breastfeeding protect against LRI in infancy

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Bachrach, 2003	Meta analysis	4525, developed countries	EBf for minimum of 2 months vs no bf	Hospitalisation for LRI in healthy full term infants			0.28 (0.14-0.54)	0.039	26 for 4 months	+
Bulkow 2002	Case control	204 cases, 388 controls	Breastfeeding Household crowding	Hospitalisation for RSV, Yukon Delta			0.33 < 6 mths if ever bf > 1/2 feeds 0.27 age > 6 mth bf within last 8 wks			+
Cesar 1999	Case control	152 cases; 2391 controls, Brazil	Type of milk consumed	Admission to hospital with pneumonia age 1-12 mths Not bf vs excl < 3/12 bf 3-12 mo			AOR 17 (7.7-36.0) 61 (19.0-195.5) 10 (2.8-36.2)			+
Pisacane, 1994	Case control	73 pneumonia/ bronchiolitis; 88 pertussis like illness; Other admissions		Risk of admission with bronchiolitis/ pneumonia < 6 months Risk of admission with pertussis like illness	 42%	 51%	0.42 (0.19-0.90 ever bf 0.22 (0.09-0.55) current bf NS			Φ

Clinical question: Do bronchodilators improve clinical outcome compared with placebo in acute bronchiolitis

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	OR	RD	NNT	
Kellner 1998	Metaanalysis - 8 trials	211 183	Bronchodilator Placebo	Improved vs not improved clinical score	98/211	137/183	0.29 [0.19, 0.45]	29.9%	3.3	+
Kellner 1998	Metaanalysis -98 trials	250 191	Nebulised bronchodilator Placebo	Average clinical score				-.21 [-.41, -0.02]		+
Kellner 1998	Metaanalysis - 3 trials	58 62	Oral bronchodilator Placebo	Average clinical score				-0.23 [-.45, 0.00]		+
Kellner 1998	Metaanalysis -13 trials	316 281	Nebulised bronchodilator Placebo	Average oximetry score				0.67 [0.49, 0.86] (favours control)		+
Kellner 1998	Metaanalysis - 2 trials	47 54	Oral bronchodilator Placebo	Average oximetry score				0.44 [-0.68, 1.55]		+
Kellner 1998	Metaanalysis -4 trials	97 90	Nebulised bronchodilator Placebo	Admission	19/97	22/90	0.76 [0.38, 1.53]		NS	+

Gadomski 1994	RCT	15 22	Oral bronchodilator Placebo	Admission	1/15	4/22	0.38 [0.06, 2.55]		NS	+
Kellner 1998	Metaanalysis -3 trials	130 47	Nebulised bronchodilator Placebo	Duration of hospitalisation				0.12 [-0.31, 0.55]	NS	+
Can, 1998	RCT	158	Salbutamol Saline Mist	Mean Respiratory distress score 30 mins 60 mins Percent with RDS >5 at 30 mins	 7.0+-3.1 5.2 28	 11.3+- 3.6 10.2 3%		 P<0.0001 P<0.0001	 4.0	Φ
Hickey 1994	RCT-crossover	42	Albuterol vs placebo	Improvement in wheezing scores Improvement in retraction scores Mean RR at baseline, 40 mins and 80 mins Mean HR at baseline, 40 mins and 80 mins Mean oxygen saturation at baseline, 40 mins and 80 mins				No sig diff No sig diff No diffs No diffs No diffs		+
Patel, 2003	RCT	64 65	Oral albuterol Placebo	Time to resolution of illness Time to normal feeding Time to normal sleeping Quiet breathing Resolved cough Resolved coryza	9.0 (8-13)	8.0 (7-9)		P=0.3 No differences in any outcomes		+

Clinical question: Are increased fluids beneficial or harmful in acute lower respiratory tract infections ?

Study authors and year Guppy MP. 2004: Systematic review	**Study Design**	**Participants**	**Outcomes**	**Results**					**Quality Scores** Φ
				rate			**Outcome**	**NNT**	
Dhawan 1992	Prospective prevalence study	100 pneumonia age 1 mo to 12 years, excluded those with clinical dehydration	Na < 130	31%			4 died		
Shann 1985	Prospective prevalence study	73 >=1 month, pneumonia	Na < 134	45%					
Rivers 1981	Case series	4, <= 6 months, 3 bronchiolitis, 1 pneumonia	Na 114-124 in 3 patients				Seizures in one patient with bronchiolitis		

Clinical question: Does smoking increase risk of LRI

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Blizzard, 2003	Cohort	4486, singleton high risk	Smoking hygiene	Hospitalisation for LRI < 12 mths Parental report of respiratory illness < 10 wks	Overall smoker Non smoker 1-10 cig 11-20 >21 Mother non smoker Never smokes same room Smokes same room Mother non smoker Never smokes same room Smokes same room		1.5 (1.22, 1.87) 1.00 1.46 (1.11, 1.91) 1.62 (1.26, 2.09) 2.34 (0.93, 1.87) 0.78 (0.52,1.19) 1.00 1.51 (1.10, 2.12) 1.00 (0.90, 1.20) 1.00 1.10 (1.01,1.20)			+
Gurkan 2000	Case control	28 cases, 30 controls	Serum continine	RSV bronchiolitis admission	10.8 mg admission 7.4 follow-up	3.9 mg				+
Jin 1993	Cohort	1007, 0-18 mths, Shanghai 1983	Total daily cigarette smoking in house (no mothers smoked), bf< or > 1 mth	Incidence of ALRI 0-18 mths requiring IP or hospital assessment	Any smoking 1-9 cig 10-19 20-39 no bf		1.6 (1.2-2.2) 1.3 1.7 2.0 p for trend 0.0002 1.8 (1.5-2.2)			+
Marbury 1996	Cohort	1424, 0-2 yrs, HMO		Clinician diagnosed LRI WARI/asthma Bronchiolitis Bronchitis Croup Respiratory illness			 2.1 (1.5-3.0) 1.3 (0.8-2.2) 1.0 (0.7-1.6) 1.2 (0.7-2.0) 1.5 (1.2-1.8)			+
Nafstad, 1996	Cohort	3754, Norway	Smoking at 6 months	Physician diagnosed LRTI	Non smoking 1-14 cigarettes >=15/day		1.00 1.5 (0.9-2.4) 2.3 (1.4-3.9)			+

Clinical question: Are Inhaled Corticosteroids useful in treating infants with bronchiolitis?

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	RR	RD	NNT	
Cade, 2000	RCT	165 enrolled, 161 completed Age < 12 months, confirmed RSV	Budesonide 1mg bd to 14 days post discharge vs placebo	Coughing and wheezing episodes in 12 mo follow-up Days till fit for Disch Time to no symptoms for 48 hrs Other outcomes- coughing episodes Readmission over 12 mo, visits for respy sx Prescriptions for steroids	99%	99%	 1.1 (0.8-1.5) 1.41 (0.98-2.0)		NS NS NS NS	+
Fox 1999	RCT	60 enrolled, 49 full follow-up	Budesonide 200 bd X 8wks vs placebo	Wheeze cough at 1mth, 2 mth, 6 mth, 12 mth Hosp adm by 12 mo > 3 symptom episodes by 12 mo Median sx episodes at 12 mo	 5/25 11/25 2	 6/25 6/24 1			Sig only at 12 mo NS NS P=0.02	Φ
Kajosari,2000	RCT	117 pts 109 fu at 2 yrs Finland, IP, 0-9 mo, RSV	Budesonide 500 tdsX 7 days Vs 2 mo treatment vs placebo	Asthma inhalation therapy at 2 yrs	18% Short term 12% 2 mo	37%			P=0.006 short P=0.01 long term	Φ
Reijonen 1996	RCT	100 pts Finland, IP, 1-23 mo	Cromolyn sodium x 8 wks vsBudesonide X16 wks vs placebo	Mean days if wheeze DR Diagnosed wheeze					NS Signif only at 9-16 wks	Φ
Richter 1998	RCT	40 UK IP, < 12 mo	Budesonide nebulized, 1mg bd X5 days then 500 microg x 6 wks	Days in oxygen Max oxygen reqd LOS Change in clinical score Followup: Reqd					NS NS NS NS	+

				bronchodilators, daily symptoms, symptom free days					NS	
Wong 2000	RCT	48 randomised, 42 completed, 41 longterm 2 wks-12 mo UK, IP	Fluticasone 150 mg bd x 3mo vs placebo	Overnight oxygen saturation Night cough Symptom freq					NS Only signif for cough > 10sec at 36 wks NS	+

Clinical question: Do systemic corticosteroids improve clinical outcome compared with placebo in acute bronchiolitis

Study authors and year	Study Design	Participants	Exposure/ Comparison	Outcomes	Results					Quality Scores
					EER	CER	OR	RD	NNT	
Patel 2004	Meta analysis: 7 trials	236 236	Steroid Placebo	Length of stay				-0.38 [-0.81, 0.05]	NS	+
Patel 2004	Meta analysis: 8 trials	**158** **151**	Steroid Placebo	Day 3 mean score				-0.20 [-0.73, 0.32]	**NS**	**+**
Patel 2004	Meta analysis: 3 trials	80 76	Steroid Placebo	Direct admission rates	16/80	19/76	1.05 [0.23, 4.87]		**NS**	**+**