G.10 Pulmonary infection – acute

Review question: What is the effectiveness of antimicrobial treatment for acute pulmonary infection or those with an exacerbation in children and adults with cystic fibrosis?

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Blumer, J. L., Saiman, L., Konstan, M. W., Melnick, D., The efficacy and safety of meropenem and tobramycin vs ceftazidime and tobramycin in the treatment of acute pulmonary exacerbations in patients with cystic fibrosis, Chest, 128, 2336-46, 2005 Ref Id	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information See Cochrane SR Hurley 2015

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
330421 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding					
Full citation Conway, S. P., Pond, M. N., Watson, A., Etherington, C., Robey, H. L., Goldman, M. H., Intravenous colistin sulphomethate in acute respiratory exacerbations in adult patients with cystic fibrosis, Thorax, 52, 987-93, 1997 Ref Id 330612 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation De Boeck, K., Smet, M., Eggermont, E., Treatment of Pseudomonas lung infection in cystic fibrosis with piperacillin plus tobramycin versus ceftazidime monotherapy: preliminary communication, Pediatric Pulmonology, 7, 171-3, 1989 Ref Id 330669 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None
Full citation Gold, R., Overmeyer, A., Knie, B., Fleming, P. C., Levison, H., Controlled trial of ceftazidime vs. ticarcillin and tobramycin in the	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
treatment of acute respiratory exacerbations in patients with cystic fibrosis, Pediatric Infectious Disease, 4, 172-7, 1985 Ref Id 330910 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Exclusion criteria See Cochrane SR Hurley 2015				
Full citation Hurley, M. N., Prayle, A. P., Flume, P., Intravenous antibiotics for pulmonary exacerbations in people with cystic fibrosis, Cochrane Database of Systematic Reviews, 7, CD009730, 2015 Ref Id 398614 Country/ies where the study was carried out	Sample size 13 randomised control trials (RCTs) from this Cochrane SR were included: Blumer 2005 Conway 1997 De Boeck 1989 Elborn 1992 Gold 1985 Macfarlane 1985 Master 2001 McCarty 1988 Richard 1997 Salh 1992 Schaad 1987 Schaad 1989	Interventions Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Blumer 2005 Intervention 1: IV meropenem 40 mg/kg up to a maximum dose of 2 g and IV tobramcyin(given for a mean of 13.5 days) Intervention 2: IV ceftazidime 50 mg/kg up to a maximum dose of 2 g and I V	Details Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Blumer 2005 Multicentre (16 centres from the US) investigator-blinded RCT with an expected duration 14 days, follow up 2 - 4 weeks after discontinuation of therapy. Conway 1997	Results Where possible data was extracted from the Cochrane SR. The full copy of the study was checked for accuracy and completeness. Additional data extracted is marked with a * Blumer 2005 Lung function (FEV1) N: 47; Mean (SD): 13.8 (9.52) VERSUS N: 50; Mean (SD): 11.1 (7.68) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported	Limitations Quality of the SR AMSTAR score: 11/11 Quality of the individual primary studies The risk of bias assessment has been taken from the SR. Blumer 2005 Random sequence generation: unclear risk of bias (Described as randomised but no detail given) Allocation concealment: unclear risk of bias (Not described) Blinding of participants and personnel: unclear risk of bias ("Investigator" Blinded)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Cochrane SR Aim of the study The SR aims to establish if IV antibiotics for the treatment of pulmonary exacerbations in people with CF improve short- and long-term clinical outcomes. Study dates Searches up to 27 July 2015. Source of funding Wellcome Trust, UK. MH was funded by a Wellcome Trust Clinical Research Training Fellowship (Grant number WT092295AIA). National Institute for Health Research, UK. AP is funded by an NIHR Doctoral Research Fellowship (Grant number DRF-2009-02-112).	Wesley 1988 Characteristics Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Blumer 2005 121 participants with a recent (usually < 1 month) culture of P. aeruginosa or B. cepacia complex recruited at a protocol-de fined exacerbation. 102 participants with P. aeruginosa infection susceptible to meropenem and ceftazidime recruited to randomised trial and stratified according to disease severity 19 participants with B. cepacia or ceftazidime-resistant P. aeruginosa recruited to	tobramycin(given for a mean of 14.1 days) Tobramycin dose adjusted to give a peak serum concentration of>= 8 µg/mL and trough concentration of < 2 µg/mL Conway 1997 Intervention 1: IV colistin (2 MU 3x daily). Intervention 2: IV colistin (2 MU 3x daily) and a second anti-pseudomonal antibiotic De Boeck 1989 Intervention 1: IV ceftazidime 50 mg/kg 3x daily. Intervention 2: IV piperacillin 75 mg/kg 4x daily and IV tobramycin 10 mg/kg/day in3 doses Elborn 1992 Intervention 1: IV ceftazidime 2 g 3x daily. Intervention 2: IV aztreonam 2 g 3x daily. Gold 1985 Intervention 1: IV ceftazidime 200	Single centre (from the UK) single-blind RCT with a duration of 12 days. De Boeck 1989 Single centre (from Belgium) RCT with a duration of 14 days. Elborn 1992 Single centre (from UK) RCT with a duration of 14 days. Gold 1985 Single centre (from Canada) RCT with a duration of 10-14 days. Macfarlane 1985 Single centre (from Australia) double-blind placebo-controlled RCT with a duration of 14 days Master 2001 Single centre (from Australia) double-blind RCT with a duration of 10 days. McCarty 1988 Single centre (from US) open-label RCT with a duration of at least 10 days. Richard 1997 Multicentre (from France, Germany,	Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events Not reported Conway 1997 Lung function (FEV1) N: 36; Mean (SD): 140 (312.5) VERSUS N: 35; Mean (SD): 300 (330.6) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality n/N: 0/36 VERSUS n/N: 1/35	Blinding of outcome assessment: unclear risk of bias (The report indicates that the 'investigator' was blinded but that this did not include assessing all the outcomes) Incomplete outcome data: high risk of bias (Some 'evaluable' data for lung function and microbiology data are missing. 2 'clinically evaluable' participants (1 from each group) withdrew) Selective reporting: unclear risk of bias (Insufficient evidence). Other bias: unclear low of risk of bias (None identified). Conway 1997 Random sequence generation: unclear risk of bias (Described as randomly assigned but no detail given) Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: high risk of bias (Single blind - outcome assessor) Blinding of outcome assessment: unclear risk of bias (Laboratory and radiology were blinded - unclear if

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
National Institute for Health Research, UK. This systematic review was supported by the National Institute for Health Research, via Cochrane Infrastructure funding to the Cochrane Cystic Fibrosis and Genetic Disorders Group.	openlabel study - the open label study is analysed separately Age: > = 5 years of age Age:>= 5 years of age Conway 1997 53 participants with CF and chronic P. aeruginosa experiencing a protocol-defined exacerbation. Intervention 1: 36 participants; mean (SD) age 21.7 (4.2) years; 17 females, 19 males; mean (SD) FEV1 % predicted 43.3 (16.6). Intervention 2: 35 participants; mean (SD) age 21.2 (4.25) years; 12 females, 23 males; mean (SD) FEV1 % predicted 45.8 (21.8). De Boeck 1989 21 participants with CF and a protocol-defined pulmonary exacerbation, chronically infected with P. aeruginosa	mg/kg/day in 4 doses. Intervention 2: IV ticarcillin 300 mg/kg/day in 4 doses and IV tobramycin 10 mg/kg/day in 3 doses Macfarlane 1985 Intervention 1: IV piperacillin 50 mg/kg 4-hourly. Intervention 2: IV placebo 5% dextrose 4-hourly. Intervention 3: IV piperacillin 100 mg/kg 8-hourly. Intervention 4: IV placebo 5% dextrose 8-hourly. All participants received IV tobramycin 2.5 mg/kg 3x daily, oral flucloxacillin 25 mg/kg/day in 4 doses and oral probenecid (suggested to increase antibiotic concentrations)250 - 500 mg 3x daily Master 2001 Intervention 1: IV ceftazidime 50 mg/kg/dose 3x daily and IV tobramycin 3 mg/kg/dose 3x daily	Greece, Hungary, Israel, Italy, Portugal, South Africa and Switzerland) open-label RCT with a duration of 14 days. Salh 1992 Single centre (from UK) double-blind RCT with a duration of at least 10 days. Schaad 1987 Single centre (from Switzerland) RCT with a duration of at least 15 days. Schaad 1989 Single centre (from Switzerland) RCT with a duration of 2 weeks IV treatment, with oral treatment extended for a further 4 weeks in 1 group. Wesley 1988 Single centre (from New Zeland) RCT with a duration of at least 14 days.	Adverse events (neurological adverse events) n/N: 33/35 VERSUS n/N: 36/36 De Boeck 1989 Lung function (FEV1 % predicted - absolute change) N: 11; Mean (SD): 16 (11.75) VERSUS N: 10; Mean (SD): 15 (11.28) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation N: 9; Mean (SD): 8 (5.66) VERSUS N: 10; Mean (SD): 9 (4.2) Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Mortality n/N: 1/10 VERSUS n/N: 1/11 Adverse events Not reported Elborn 1992 Lung function (FEV1 litres - absolute change) N: 12 Mean (SD): 0.38 (0.33) VERSUS N: 12; Mean (SD): 0.27 (0.26)	physiological outcome assessors were blinded) Incomplete outcome data: low risk of bias (9 withdrawals described and analysed as ITT.) Selective reporting: unclear risk of bias (Insufficient evidence) Other bias: high risk of bias (Unit of Analysis issues - 18 participants enrolled 2x) De Boeck 1989 Random sequence generation: unclear risk of bias (Randomisation stated but not described) Allocation concealment: unclear risk of bias (No information given) Blinding of participants and personnel: high risk of bias (Participants and clinicians were not blinded) Blinding of outcome assessment: low risk of bias (Lung function undertaken by a technician blinded to regimen) Incomplete outcome data: low risk of bias (No withdrawals) Selective reporting: unclear risk of bias (None identified) Other bias: low risk of bias (None identified) Elborn 1992

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	that was sensitive to piperacillin, tobramycin and ceftazidime. Mean age 14.8 years. Intervention 1: 10 participants. Intervention 2: 11 participants. Elborn 1992 24 participants with CF and chronic P. aeruginosa infection experiencing exacerbations. Mean (range) age 20 (14 - 48) years. Gender split: 12 male, 12 female. Gold 1985 30 participants with CF and P. aeruginosa infection present at the previous clinic visit, experiencing an acute respiratory exacerbation. Intervention 1: 17 participants; mean (SE) age 18.9 (1.1) years; 15 males, 2 females	Intervention 2: IV tobramycin 9 mg/kg/day 1x daily. Duration: at least 10 days. McCarty 1988 Intervention 1: IV piperacillin 600 mg/kg/day (regimen not detailed) Intervention 2: IV piperacillin 600 mg/kg/day and tobramycin 8 - 10 mg/kg/day(regimen not detailed Duration: at least 10 days. Richard 1997 Intervention 1: oral ciprofloxacin 15 mg/kg 2x daily. Intervention 2: IV ceftazidime 50 mg/kg 3x daily and IV tobramycin 3 mg/kg 3x daily Duration: 14 days. Salh 1992 Intervention 1; IV aztreonam 8 g/day in 4 doses. Intervention 2: IV ceftazidime 8 g/day in 4 doses. Duration: 2 weeks		Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events Not reported Gold 1985 Lung function (FEV1 % - relative change) N: 17; Mean (SD): 13.7 (23.09) VERSUS N: 13; Mean (SD): 33.3 (27.76) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode	Random sequence generation: unclear risk of bias (Desccribed as randomised but no method detailed) Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: unclear risk of bias (No detail given) Blinding of outcome assessment: unclear risk of bias (No detail given) Incomplete outcome data: unclear risk of bias (No withdrawals described) Selective reporting: unclear risk of bias (Insufficient information) Other bias: low risk of bias (No other bias identified) Gold 1985 Random sequence generation: low risk of bias (Randomised using a table of random numbers used) Allocation concealment: unclear risk of bias (No detail) Blinding of participants and personnel: high risk of bias (Unblinded) Blinding of outcome assessment: low risk of bias (Outcome assessor blinded)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Intervention 2: 13 participants; mean (SE) age 17.8 (0.8) years; 9 males, 4 females Macfarlane 1985 19 participants aged over 8 years with CF with P. aeruginosa in sputum admitted to hospital for worsening respiratory status. Mean age 13.7 to 15.6 years Intervention 1: 4 participants; mean (SD) age 15.3 (3) years Intervention 2: 5 participants; mean (SD) age 12.5 (2.9) years Intervention 3: 4 participants; mean (SD) age 13.7 (2.6) years Intervention 4: 5 participants; mean (SD) age 15.6 (3.4) years Master 2001 51 participants with CF experiencing a protocol-defined exacerbation with	Schaad 1987 Intervention 1: IV ceftazidime 250 mg/kg/day in 4 doses and IV amikacin 33 mg/kg/day in 3 doses Intervention 2: IV ceftazidime 250 mg/kg/day in 4 doses and IV amikacin 33 mg/kg/day in 3 doses and nebulised amikacin 100 mg 2x daily Duration: 15 days Schaad 1989 Intervention 1: IV aztreonam 300 mg/kg/day in 4 doses and IV amikacin 36 mg/kg/day in 3 doses Intervention 2: IV ceftazidime 300 mg/kg/day in 4 doses and IV amikacin 36 mg/kg/day in 3 doses for 2 weeks followed by oral ciprofloxacin 30 mg/kg/day for 4 weeks Duration: 2 weeks IV treatment, with oral treatment extended for a further 4 weeks in1 group Wesley 1988		Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (Proteinuria) N/n: 1/17 VERSUS N/n: 1/17 Macfarlane 1985 Lung function (FEV1 % predicted - relative change). COMPARISON 1Single IV antibiotic in combination with placebo (IV placebo 5% dextrose 4-hourly and IV tobramycin) VERSUS combination IV antibiotics (IV piperacillin 50 mg/kg 4-hourly and IV tobramycin) N: 4; Mean (SD): 8 (18.7) VERSUS N: 5; Mean (SD): 12.2 (14.5) COMPARISON 2Single IV antibiotic in combination with placebo (IV placebo 5% dextrose 8-hourly and IV tobramycin)VERSUS combination IV antibiotics (IV piperacillin 100 mg/kg 8-hourly and IV tobramycin) N: 4; Mean (SD): 9.75 (9.7) VERSUS N: 5; Mean (SD): 1.8 (15.7)Mean Difference IV, Fixed, 95% CI: 7.95 [-8.78, 24.68] Eradication of specific pathogen	Incomplete outcome data: low risk of bias (No withdrawals) Selective reporting: unclear risk of bias (Insufficient information) Other bias: low risk of bias (No other bias identified) Macfarlane 1985 Random sequence generation: unclear risk of bias (Described as randomly as signed but no method given) Allocation concealment: unclear risk of bias (No method described) Blinding of participants and personnel: low risk of bias (Described as double-blind. Identities of infusions known only to pharmacy personnel) Blinding of outcome assessment: low risk of bias (Described as double-blind) Incomplete outcome data: high risk of bias (2 participants withdrew and did not contribute data to the analysis) Selective reporting: unclear risk of bias (Insufficient information) Other bias: high risk of bias (Unit of Analysis issues - 1

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	P. aeruginosa isolated from sputum. Participants with an FVC lower than 40%predicted were excluded Intervention 1: 21 participants; mean (SD) age 16 (7) years. Intervention 2: 23 participants; mean (SD) age 15 (5) years. McCarty 1988 17 children with CF admitted for treatment of pulmonary exacerbations Intervention 1: 8 participants. Intervention 2: 9 participants. Age: range 2 - 12 years. Richard 1997 108 children with CF and P. aeruginosa infection and experiencing a protocol-defined pulmonary exacerbation	Intervention 1: IV ceftazidime 150 mg/kg/day (regimen not detailed) Intervention 2: IV tobramycin 7.5 mg/kg/day and IV ticarcillin 300 mg/kg/day (regimen not detailed) Duration: 14 days		Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (sensitivity reaction) N/n: 0/8 VERSUS N/n: 3/10 Odds Ratio (M-H, Fixed, 95% CI): 0.13 [0.01, 2.86] Master 2001 Lung function (FEV1 % predicted - absolute change). N: 47; Mean (SD): 10.6 (8.5) VERSUS N: 14; Mean (SD): 13.21 (9.92) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported	participant received 2 treatment courses) Master 2001 Random sequence generation: unclear risk of bias (Described as randomised, stratified for age and disease progression, but no method detailed) Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: low risk of bias (Described as double blind with medical and nursing staff and participants blinded with identical syringes and placebos) Blinding of outcome assessment: low risk of bias (Described as double blind) Incomplete outcome data: low risk of bias (Withdrawals were described and those participants who completed 10 days treatment but excluded for other reasons were in included in an ITT analysis. The ITT analysis is described as not changing the effect of the short-term analysis, but no data provided)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Intervention 1: oral ciprofloxacin - mean age 10.2 years; 32 males, 23 females Intervention 2: IV ceftazidime and IV tobramycin - mean age 11.0 years; 27 males, 26 Females Salh 1992 22 participants with CF and P. aeruginosa sensitive to the study drugs who were admitted to hospital due to an infective exacerbation Age: 16 - 32 years. Gender split: aztreonam - 6 females, 8 males; ceftazidime - 4 females, 8 males Schaad 1987 62 participants with CF admitted with an acute pulmonary exacerbation who had P. aeruginosa isolated on admission. Those who had been admitted to hospital			Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (Tinnitus) N/n: 2/47 VERSUS N/n: 2/51 McCarty 1988 Lung function (FEV1) Results reported in a narrative way (pag. 203)* Eradication of specific pathogen* n/N: 12/19 VERSUS n/N: 5/19 Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality n/N: 0/8 VERSUS n/N: 0/9 Adverse events (Rash) n/N: 0/8 VERSUS n/N: 1/9 Richard 1997 Lung function Not reported	Selective reporting: unclear risk of bias (Insufficient information) Other bias: high risk of bias (Unit of Analysis issues - each participant contributed multiple treatment episodes) McCarty 1988 Random sequence generation: unclear risk of bias (Described as randomly assigned but no details given) Allocation concealment: low risk of bias (Sequentially numbered envelopes were used, although it is not clear if these were opaque and sealed. On balance, considered low risk) Blinding of participants and personnel: high risk of bias (Unblinded) Blinding of outcome assessment: high risk of bias (Unblinded) Incomplete outcome data: low risk of bias (No withdrawals) Selective reporting: unclear risk of bias (Insufficient information) Other bias: high risk of bias (Unit of Analysis issues - 3 participants were included twice)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	in the recent 6 months were excluded Age: range 3 - 24 years. Intervention 1: 24 participants. Intervention 2: 30 participants. Schaad 1989 42 participants with CF admitted with a protocol-defined pulmonary exacerbation and P. aeruginosa isolated at admission. Those who had been admitted to hospital in previous 4 months were excluded Age: mean (SD) 15.4 (6) years (range 2.3 - 25.4 years). Intervention 1: 28 participants. Intervention 2: 28 participants. Wesley 1988 13 children with CF and severe chest disease. Age range 9 - 15 years.			Eradication of specific pathogen* n/N: 30/48 VERSUS n/N: 12/49 Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (Treatment-related events) n/N: 10/53 VERSUS n/N: 9/55 Salh 1992 Lung function (litres -absolute change) N: 11 Mean (SD): 0.26 (0.356) VERSUS N: 11; Mean (SD): 0.54 (0.497) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure	Richard 1997 Random sequence generation: unclear risk of bias (Described as randomised, but no detail given) Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: high risk of bias (Unblinded) Blinding of outcome assessment: high risk of bias (Unblinded) Incomplete outcome data: low risk of bias (The efficacy and safety analysis were described as analysed on an ITT basis) Selective reporting: unclear risk of bias (Insufficient information) Other bias: unclear risk of bias (An author on the paper i s affiliated to Pharma Research Center, Bayer AG. Bayer produced ciprofloxacin) Salh 1992 Random sequence generation: unclear risk of bias (Randomised in pharmacy using 'simple random allocation')

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Intervention 1: 13 participants. Intervention 2: 10 participants. Inclusion criteria Exclusion criteria			Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events Not reported Schaad 1987 Lung function Not reported Eradication of specific pathogen P. aeruginosa eradication at completion of therapy ceftazidime and amikacin with inhaled amikacin: 30/43 (70%) vs ceftazidime and amikacin alone: 18/44 (41%) Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported	Allocation concealment: low risk of bias (Sealed opaque envelopes but unclear whether sequentially numbered) Blinding of participants and personnel: low risk of bias (Described as double-blind infusions prepared in pharmacy and labelled with trial number) Blinding of outcome assessment: low risk of bias (Unclear, but as the physicians and participants were blinded it is likely the outcome assessors were also blinded) Incomplete outcome data: unclear risk of bias (4 withdrew -3 of whom were treatment failures-, it is unclear if these contributed to the analysis) Selective reporting: unclear risk of bias (Insufficient evidence) Other bias: high risk of bias (Unit of Analysis issues - 4 participants contribute multiple treatment episodes) Schaad 1987 Random sequence generation: unclear risk of bias (Described as randomly allocated but no details given)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
				Adverse events (Raised liver transaminases) n/N: 5/30 VERSUS n/N: 6/24 Schaad 1989 Lung function (FEV1 % predicted - absolute change). N: 24; Mean (SD): 13 (6.8) VERSUS N: 25; Mean (SD): 9 (8.3354664) Eradication of specific pathogen* n/N: 17/28 VERSUS n/N: 16/28 Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (A- Thrombocytopenia; B- Liver transaminases - AST/SGOT % ALT/SGPT; C- Rash) Thrombocytopenia n/N: 3/28 VERSUS n/N: 0/28 Liver transaminases n/N: 4/28 VERSUS n/N: 2/28	Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: unclear risk of bias (No information on blinding given) Blinding of outcome assessment: low risk of bias (Clinical evaluator blinded to treatment allocation) Incomplete outcome data: low risk of bias (No withdrawal) Selective reporting: unclear risk of bias (Insufficient evidence) Other bias: unclear high risk of bias (Unit of Analysis issues - 13 participants enrolled 2x and 6 participants enrolled 3x) Schaad 1989 Random sequence generation: unclear high risk of bias (Randomised but no detail given) Allocation concealment: unclear high risk of bias (No detail given) Blinding of participants and personnel: unclear risk of bias (Unclear - no detail given) Blinding of outcome assessment: low risk of bias (Clinical evaluation

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
				Rash n/N: 0/28 VERSUS n/N: 2/28 Wesley 1988 Lung function Not reported Eradication of specific pathogen Not reported Time to next pulmonary exacerbation (Proportion readmitted, requiring IV antibiotics or death in subsequent 3 months-proxy outcome) n/N: 7/12 VERSUS n/N: 19/32 Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Duration of the acute episode Not reported Quality of life (QOL) Not reported Mortality Not reported Adverse events (Liver transaminase enzyme elevation) n/N: 0/12 VERSUS n/N: 0/10	undertaken by 2 investigators without knowledge of allocation) Incomplete outcome data: high risk of bias (Clinical outcomes available for about 50% of participants only. Some participants are young children (and so would be able to perform lung function tests) but the mean age is 15.4 years and so there are data missing for many participants for whom lung function testing would have been possible) Selective reporting: unclear risk of bias (Insufficient evidence) Other bias: high risk of bias (Unit of Analysis issues - 42 participants received 56 courses of treatment) Wesley 1988 Random sequence generation: unclear risk of bias (Described as randomised but no details given) Allocation concealment: unclear risk of bias (No detail given) Blinding of participants and personnel: unclear risk of bias (Described as double blind but no details given)

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					Blinding of outcome assessment: unclear of bias (Described as double blind but no details given) Incomplete outcome data: unclear risk of bias (No detail available) Selective reporting: unclear high risk of bias (Insufficient information) Other bias: high risk of bias (Unit of Analysis issues - 13 participants received 23 courses of treatment) Other information
Full citation Langton Hewer, S. C., Smyth, A. R., Antibiotic strategies for eradicating Pseudomonas aeruginosa in people with cystic fibrosis, Cochrane Database of Systematic Reviews, 11, CD004197, 2014 Ref Id 363031 Country/ies where the study was carried out Study type	Sample size Two randomised control trials (RCTs) were included from this Cochrane SR: Proesmans 2013 Taccetti 2012 Characteristics Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Proesmans 2013	Interventions Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Proesmans 2013 Treatment (n = 29): Inhaled TSI (300 mg 2x daily for 28 days) Control (n = 29): 3 months combination therapy with inhaled colistin (2 MU 2x daily) + oral ciprofloxacin (10 mg/kg 3x daily) Taccetti 2012	Details Where possible data were extracted from the Cochrane SR. The full text of the primary study was checked for accuracy and completeness. Proesmans 2013 Single centre (based in Europe) RCT with a duration of 3 months. Taccetti 2012 Multicentre (13 centres - based in Italy) RCT with a duration of 28 days.	Results Where possible data was extracted from the Cochrane SR. The full copy of the study was checked for accuracy and completeness. Additional data extracted is marked with a * Proesmans 2013 Lung function Not reported Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure	Limitations Quality of the SR AMSTAR score: 10/11 Quality of the individual primary studies The risk of bias assessment has been taken from the SR Proesmans 2013 Random sequence generation: unclear risk of bias (Randomised in blocks of 10. No description given of method of randomisation, nor of any stratification) Allocation concealment: unclear risk of bias (Did not report how allocation was concealed) Blinding: high risk of bias (Blinding not possible for

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Cochrane SR Aim of the study The objectives of this review are: 1) To determine whether antibiotic treatment of early Pseudomonas aeruginosa infection in children and adults with cystic fibrosis eradicates the organism, delays the onset of chronic infection, and results in clinical improvement. 2) To evaluate whether there is evidence that a particular antibiotic strategy is superior to or more cost-effective than other strategies and to compare the adverse effects of different antibiotic strategies (including respiratory infection with other micro-organisms). Study dates	58 children with CF, all with new isolation of P. aeruginosa (sputum or cough swabs). Age: median age 9 years, interquartile range (4.7 - 13.1 years) Gender: 31 male, 27 female. Lung function: median FEV1 at inclusion 98% predicted. Taccetti 2012 223 participants with first ever or new P. aeruginosa infection. New infection defined as P. aeruginosa isolation following bacterial clearance documented by 3 negative cultures within the previous 6 months Age: over 1 year. Gender: 116 male, 107 female. Inclusion criteria Exclusion criteria	Group A (n = 105; 52 male and 53 female): 28 days 2x daily inhalation of 2 MU colistin with 2x daily doses of ciprofloxacin 15 mg/kg/dose Group B (n = 118; 64 male and 54 female): 28 days therapy with TSI (300 mg 2x daily) with 2x daily doses of ciprofloxacin 15 mg/kg/dose		Not reported Quality of life (QOL) Not reported Adverse events (Severe cough) n/N: 0/29 VERSUS n/N: 1/29 Taccetti 2012 Lung function (FEV1) N: 60; Mean (SD): 2.15 (8.5) VERSUS N: 68; Mean (SD): 4.55 (11.54) Eradication of specific pathogen Not reported Time to next pulmonary exacerbation Not reported Resolution of infection/exacerbation or measure of treatment failure Not reported Quality of life (QOL) Not reported Adverse events (A-vomiting; B- Photosensitivity; C-Wheeze; D- Pulmonary exacerbation during early eradication treatment; E- Lack of compliance) Vomiting n/N: 1/105 VERSUS n/N: 2/118 Photosensitivity n/N: 1/105 VERSUS n/N: 0/118 Wheezen/N: 0/105 VERSUS n/N: 1/118	participants and clinicians as treatments compared were inhaled versus inhaled and oral. No details regarding whether outcome assessors were blinded) Incomplete outcome data: low risk of bias (ITT analysis on all 58 randomised participants) Selective reporting: high risk of bias (Protocol published on ClinicalTrials.gov -identifier: NCT01400750. All pre-specified outcomes reported BMI z score, weight z score and frequency of exacerbations were reported not to have changed significantly for trial participants, but numerical data are not reported) Other bias: unclear risk of bias (Primary outcome was assessed at end of treatment which was different for the 2 treatment groups 28 days for TSI participants versus 3 months for colistin/ciprofloxacin participants) Taccetti 2012 Random sequence generation: low risk of bias (Randomisation sequence generated by statistical software within permuted

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Searches up to 08 September 2014. Source of funding No details given.				Pulmonary exacerbation during early eradication treatment n/N: 4/105 VERSUS n/N: 5/118 Lack of compliance n/N: 11/105 VERSUS n/N: 13/118	blocks of size 10, stratified according to age and FEV1) Allocation concealment: low risk of bias (Separation of individuals responsible for randomisation and treatment assignment) Blinding: high risk of bias (Open-label trial so no blinding of participants nor researchers) Incomplete outcome data: low risk of bias (38 of 223 randomised participants -17%- dropped out of the trial. The biggest reason for dropping out was lack of compliance with follow up protocol -11 from Group A and 13 from Group B- and identification of a pulmonary exacerbation during early eradication therapy -4 from Group A and 5 from Group B. Analysis was by ITT) Selective reporting: unclear risk of bias (We have been unable to locate a published protocol for this trial. The details published on the EudraCT database -number 2008-006502-42; describe objectives but not outcomes. In the main paper, the methods section does not describe all the trial objectives. Only eradication, time free of P. aeruginosa

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					and spirometry are described in the methods section. These outcomes plus the additional outcomes of isolation of other organisms and adverse events are described in the results) Other bias: low risk of bias (No evidence of other bias identified) Other information
Full citation Lo, D. K., Hurley, M. N., Muhlebach, M. S., Smyth, A. R., Interventions for the eradication of meticillin-resistant Staphylococcus aureus (MRSA) in people with cystic fibrosis, Cochrane Database of Systematic Reviews, 2, CD009650, 2015 Ref Id 398687 Country/ies where the study was carried out Study type Cochrane SR Aim of the study	Sample size Children and adults diagnosed with CF clinically and by sweat or genetic testing with a confirmed positive microbiological isolate of MRSA on clinically relevantCF respiratory cultures (bronchoalveolar lavage (BAL), cough or oropharyngeal swab, spontaneous or induced sputum culture) specimen prior to enrolment into the trial. The authors included all disease severities.	Interventions Intervention Any combinations of topical, inhaled, oral or intravenous antimicrobials with the primary aim of eradicating MRSA once detected on clinically relevantCF respiratory cultures Comparison Placebo Standard treatment No treatment.	Details	Results No randomised control trials (RCTs) were identified for inclusion.	Limitations Other information

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
To evaluate the effectiveness of treatment regimens designed to eradicate MRSA and to determine whether the eradication of MRSA confers better clinical and microbiological outcomes for people with cystic fibrosis. Study dates Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 2, 2015. Review content assessed as up-to-date: 18 February 2015. Source of funding	They did not include patients with nasal carriage of MRSA alone in this review. Characteristics Inclusion criteria Exclusion criteria				
Full citation Macfarlane, P. I., Hughes, D. M., Landau, L. I., Olinsky, A., The role of piperacillin	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
therapy in pulmonary exacerbations of cystic fibrosis: a controlled study, Pediatric Pulmonology, 1, 249-55, 1985 Ref Id 331397 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015				
Full citation Master,V., Roberts,G.W., Coulthard,K.P., Baghurst,P.A., Martin,A., Roberts,M.E., Onishko,C.R., Martin,A.J., Linke,R.J., Holmes,M., Jarvinen,A., Kennedy,D., Colebatch,K.A., Hansman,D., Parsons,D.W., Efficacy of once-daily tobramycin monotherapy for	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information See Cochrane SR Hurley 2015

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
acute pulmonary exacerbations of cystic fibrosis: a preliminary study, Pediatric Pulmonology, 31, 367-376, 2001 Ref Id 310452 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding					
Full citation McCarty, J. M., Tilden, S. J., Black, P., Craft, J. C., Blumer, J., Waring, W., Halsey, N. A., Comparison of piperacillin alone versus piperacillin plus tobramycin for treatment of respiratory infections in children with cystic fibrosis, Pediatric Pulmonology, 4, 201-4, 1988 Ref Id	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
331472 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding					
Full citation Proesmans, M., Vermeulen, F., Boulanger, L., Verhaegen, J., De Boeck, K., Comparison of two treatment regimens for eradication of Pseudomonas aeruginosa infection in children with cystic fibrosis, Journal of Cystic Fibrosis, 12, 29-34, 2013 Ref Id 331777 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Langton 2014 Characteristics See Cochrane SR Langton 2014 Inclusion criteria See Cochrane SR Langton 2014 Exclusion criteria See Cochrane SR Langton 2014	Interventions See Cochrane SR Langton 2014	Details See Cochrane SR Langton 2014	Results See Cochrane SR Langton 2014	Limitations See Cochrane SR Langton 2014 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Richard, D. A., Nousia-Arvanitakis, S., Sollich, V., Hampel, B. J., Sommerauer, B., Schaad, U. B., Oral ciprofloxacin vs. intravenous ceftazidime plus tobramycin in pediatric cystic fibrosis patients: comparison of antipseudomonas efficacy and assessment of safety with ultrasonography and magnetic resonance imaging. Cystic Fibrosis Study Group, Pediatric Infectious Disease Journal, 16, 572-8, 1997 Ref Id 331843 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Salh, B., Bilton, D., Dodd, M., Abbot, J., Webb, K., A comparison of aztreonam and ceftazidime in the treatment of respiratory infections in adults with cystic fibrosis, Scandinavian Journal of Infectious Diseases, 24, 215-8, 1992 Ref Id 331916 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None
Full citation Schaad, U. B., Wedgwood-Krucko, J., Guenin, K., Buehlmann, U., Kraemer, R., Antipseudomonal therapy in cystic fibrosis: aztreonam	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
and amikacin versus ceftazidime and amikacin administered intravenously followed by oral ciprofloxacin, European Journal of Clinical Microbiology & Infectious Diseases, 8, 858-65, 1989 Ref Id 331932 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015				
Full citation Schaad, U. B., Wedgwood-Krucko, J., Suter, S., Kraemer, R., Efficacy of inhaled amikacin as adjunct to intravenous combination therapy (ceftazidime and amikacin) in cystic fibrosis, Journal of	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Pediatrics, 111, 599-605, 1987 Ref Id 331933 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding					
Full citation Taccetti, G., Bianchini, E., Cariani, L., Buzzetti, R., Costantini, D., Trevisan, F., Zavataro, L., Campana, S., Italian Group for, P. aeruginosa Eradication in Cystic Fibrosis, Early antibiotic treatment for Pseudomonas aeruginosa eradication in patients with cystic fibrosis: a randomised multicentre study comparing two different protocols,	Sample size See Cochrane SR Langton 2014 Characteristics See Cochrane SR Langton 2014 Inclusion criteria See Cochrane SR Langton 2014 Exclusion criteria See Cochrane SR Langton 2014	Interventions See Cochrane SR Langton 2014	Details See Cochrane SR Langton 2014	Results See Cochrane SR Langton 2014	Limitations See Cochrane SR Langton 2014 Other information Nonw

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Thorax, 67, 853-9, 2012 Ref Id 332108 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding					
Full citation Elborn, S., Colville, A., Cordon, S., Hiller, E. J., Shale, D., A comparison of intravenous ceftazidime and aztreonam in the treatment of respiratory exacerbations in cystic fibrosis [abstract], 11th International Cystic Fibrosis Congress, 1992 Ref Id 419093 Country/ies where the study was carried out Study type Aim of the study Study dates	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane SR Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding					
Full citation Wesley, A. W., Quested, C., Edgar, B. W., Lennon, D. R., A double-blind comparison of ceftazidime with tobramycin and ticarcillin in the treatment of exacerbations of pseudomonas chest infection in children with cystic fibrosis [abstract], 10th International Cystic Fibrosis Congress. R, 1988 Ref Id 363310 Country/ies where the study was carried out Study type Aim of the study Study dates Source of funding	Sample size See Cochrane SR Hurley 2015 Characteristics See Cochrane review Hurley 2015 Inclusion criteria See Cochrane SR Hurley 2015 Exclusion criteria See Cochrane SR Hurley 2015	Interventions See Cochrane SR Hurley 2015	Details See Cochrane SR Hurley 2015	Results See Cochrane SR Hurley 2015	Limitations See Cochrane SR Hurley 2015 Other information None
Full citation Horsley, A., Jones, A. M., Lord, R., Antibiotic treatment for	Sample size Individuals with CF, of any age, diagnosed on the basis of clinical	Interventions Intervention Any antibiotic treatment regimen for treating an	Details	Results No relevant trials were identified.	Limitations Other information

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Burkholderia cepacia complex in people with cystic fibrosis experiencing a pulmonary exacerbation, Cochrane Database of Systematic ReviewsCochrane Database Syst Rev, 1, CD009529, 2016 Ref Id 537684 Country/ies where the study was carried out Study type Cochrane Systematic review Aim of the study To assess the effectiveness and safety of different antibiotic regimens in people with cystic fibrosis experiencing an exacerbation and chronically infected with organisms of the Burkholderia cepacia complex. Study dates	evidence of CF-lung disease and either genotype analysis or sweat testing, or both. Participants were also required to have evidence of pulmonary infection with organisms of the Burkholderia cepacia complex (Bcc), defined as at least two positive sputumor bronchoalveolar lavagemicrobiology specimens within the last sixmonths, grown on specialist media and confirmed by conventional molecular and microbiological techniques. Characteristics Inclusion criteria Exclusion criteria	exacerbation of CF-lung disease Comparison Placebo Different antibiotic regimen, regardless of frequency of administration, treatment duration, route of delivery or use of additional therapies			

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Date of latest search: 28 August 2015. Source of funding					
Full citation Regan, K. H., Bhatt, J., Eradication therapy for Burkholderia cepacia complex in people with cystic fibrosis, Cochrane Database of Systematic Reviews, 11, CD009876, 2016 Ref Id 567004 Country/ies where the study was carried out Study type Cochrane systematic review Aim of the study This review has 2 aims: To identify whether treatment of Burkholderia cepacia complex infections can achieve eradication, or if	Sample size Any person with a clinical diagnosis of CF that has been confirmed by sweat testing or genetic analysis, or both, who acquires a new infection or a re-infection with BCC. People of all ages and disease severity will be included. Characteristics Inclusion criteria Exclusion criteria	Interventions Intervention Any antibiotic or antibiotic adjuvant therapy used alone or in combination to eradicate BCCinfection. Comparison Alternative antimicrobial agent Pacebo No treatment (excluding the participant's usual therapeutic regimen). The mode of delivery of the intervention may be inhaled, oral or intravenous and there is no limit to the duration of therapy or dosage used.	Details	Results No trials were identified for inclusion in this review.	Limitations Other information

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
treatment can prevent or delay the onset of chronic infection. To establish whether following eradication, clinical outcomes are improved and if there are any adverse effects. Study dates Date of last search: 14 July 2016 Source of funding This systematic review was supported by the National Institute for Health Research, via Cochrane Infrastructure funding to the Cochrane Cystic Fibrosis and Genetic Disorders Group.					
Full citation Waters, Valerie, Ratjen, Felix, Antibiotic treatment for nontuberculous mycobacteria lung	Sample size Adults and children (ages 0 to 18 years) diagnosed with CF (with all levels of disease severity),	Interventions Intervention The intervention was antibiotics to treat NTM pulmonary infections. The authors planned	Details	Results No trials were identified for inclusion in the review.	Limitations Other information

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
infection in people with cystic fibrosis, Cochrane Database of Systematic Reviews, 2016 Ref Id 589511 Country/ies where the study was carried out Study type Cochrane systematic review Aim of the study The objective of the review was to compare antibiotic treatment to no antibiotic treatment, or to compare different combinations of antibiotic treatment, for nontuberculous mycobacteria lung infections in people with cystic fibrosis. The primary objective was to assess the effect of treatment on lung function and pulmonary exacerbations and to quantify adverse	confirmed with sweat test or genetic testing, or both, who have NTMpulmonary infection (defined as at least two respiratory specimens positive by culture for NTM - post hoc change) will be included. Individuals with a respiratory tract specimen that is positive on stain for acid-fast bacilli (AFB) but culture negative for NTM will not be included. Respiratory tract specimens will include sputum, lung biopsy or bronchoalveolar lavage specimens. Individuals with CF who have received a lung transplant will be excluded. Characteristics Inclusion criteria Exclusion criteria	to compare NTM antibiotics to no antibiotic treatment as well as compare different NTM antibiotic regimens. Antibiotics included single or multiple antibiotics, oral, inhaled or intravenous antibiotics.			

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Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
events. The secondary objectives were to assess treatment effects on the amount of bacteria in the sputum, quality of life, mortality, nutritional parameters, hospitalizations and use of oral antibiotics. Study dates Date of last search: 03 November 2016. Source of funding					

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