access to services and transplantation. Prior to developing a protocol for attempted eradication of Bcc, similar to that applied to *Pseudomonas aeruginosa*, UK CF centres were surveyed to establish what practices are currently employed.

**Methods** A questionnaire was distributed to CF centre directors and non-returns followed up by email reminder.

**Results** Responses were obtained from 35 units (73%). Because of the rarity of new Bcc infection in paediatric centres, only replies from 16 adult centres (representing 3400 patients) have been analysed further. 12 centres, representing 2860 patients, always attempt eradication of newly isolated Bcc. Two additional centres attempt eradication only in the presence of additional indications. Only two units had a formal eradication policy. IV antibiotics were used in all cases, for a median of 2 (range 2–6) weeks, typically comprising combined tobramycin and meropenem with additional therapy consisting of septrin (n=5), ceftazidime (6), and chloramphenicol (2). Nebulised antibiotics (typically tobramycin or meropenem) were also used in 13 of these 14 centres. Five units used additional oral antibiotics, for a median of 7 (2–12) weeks. This most commonly involved minocycline (n=4) and/or septrin (n=5). Two thirds of adult centres estimated success rate of eradication therapy to be <50%. In centres where eradication was not routine, factors that dissuaded clinicians were perceived poor success of treatment (n=5), toxicity (n=3), cost (n=1) and lack of experience with this approach (n=2).

**Conclusions** Attempted eradication of newly acquired Bcc is controversial, involving expensive and potentially toxic therapies with no evidence to guide treatment choice and no published outcome data. Despite this, it is common practice in many UK adult CF centres. Most units do not have a formal eradication policy, adopting a variety of approaches, and estimates of treatment success are pessimistic. Since new acquisition of Bcc is now relatively rare, it is hard for even large units to assess response to therapies. A systematic approach is required to optimise and standardise treatment regimens, and assess outcomes.

## P169 CHARACTERISTICS AND SURVIVAL OF PATIENTS WITHOUT CYSTIC FIBROSIS (CF), ISOLATING MUCOID P AERUGINOSA (MPA) IN SPUTUM SAMPLES

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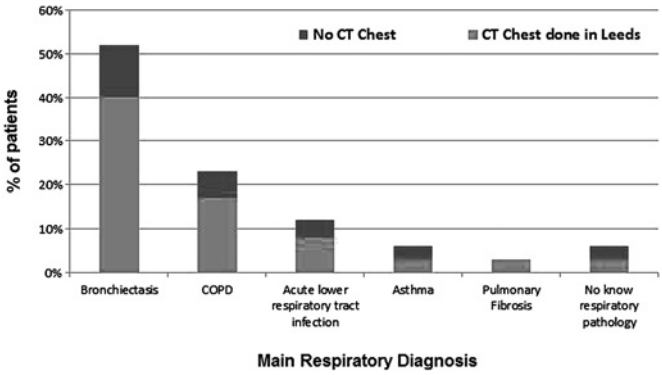
**Introduction and Objectives** It is well established in patients with CF m*PA* indicates chronic infection and is associated with increased morbidity and mortality. Mucoid *PA* can be isolated in people with non-CF lung disease but to-date no study has systematically characterised these patients. The aim of this study was to characterise and evaluate the significance of mucoid strain in a large non CF population.

**Methods** This study retrospectively examined the demography, clinical diagnoses and survival, of patients without CF with an initial isolate of m*PA* from their respiratory samples, between January 2008 and December 2010, in Leeds. Data were obtained from the microbiology and radiology databases, and from the clinical notes. Ethical approval was obtained.

**Results** A total of 170 patients isolated m*PA* in sputum for the first time during the study period. The median (range) age was 73 (22–99) years and 54% were female. 46% of patients had samples obtained during an in-patient stay. 21% of the patients had never seen a respiratory physician. The majority of patients had a diagnosis of bronchiectasis (See Abstract P169 figure 1). A third of patents had isolated non-mucoid *PA* prior to isolating m*PA*. 62% of the patients had a subsequent respiratory sample analysed and the majority continued to grow m*PA*. 24 patients also grew Methicillin-resistant *Staphylococcus aureus* (MRSA) from their sputum. The median age (range) of death was 78 (40–95) years. The cumulative survival was 50% at 3 years after isolating m*PA*. Factors associated with increased mortality included co-isolation of MRSA, no previous respiratory review, isolating m*PA* during in-patient care and absence of bronchiectasis ($p<0.05$).




Abstract P169 Figure 1 Diagnosis of patients isolating m*PA*.

**Conclusions** Mucoid *P aeruginosa* isolated from the sputum of patients without CF may persist and is associated with high mortality. The underlying respiratory diagnosis of patients isolating m*PA* includes a range of respiratory diseases. There may be an opportunity to eradicated *P aeruginosa* in patients who grow non-mucoid *PA* before the emergence of m*PA*.

## P170 A COST-EFFECTIVENESS ANALYSIS OF RESPIRATORY SYNCYTIAL VIRUS (RSV) PROPHYLAXIS IN INFANTS IN THE UK

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**Background and Aim** RSV is the most common cause of lower respiratory tract infection in young children and may result in hospitalisations, long-term sequelae, such as recurrent wheeze and/or asthma, and possibly death. Palivizumab is a prophylaxis against severe RSV infection and has been shown to reduce RSV-related hospitalisations, and provides a preventative option for high-risk infants. The aim of this study is to demonstrate the cost-effectiveness of RSV prophylaxis compared to no prophylaxis in the following high-risk infants groups: infants with chronic lung disease (CLD) and premature babies (<29, 29–32 and 33–35 weeks gestational age (wGA)).

**Methods** A decision-tree model was developed to reflect the clinical pathway of infants at high-risk of severe RSV infection. Baseline risk of RSV-hospitalisations and efficacy data were taken from palivizumab clinical trials and published meta-analysis. Cost data were obtained from national databases and published literature using an NHS perspective. The main outcome was presented as the incremental costs per Quality-Adjusted Life-Year (QALY) gained (ICER). The base-case analysis considered a lifetime horizon to capture the impact of long-term morbidity and mortality associated with RSV hospitalisations.

**Results** Prophylaxis against severe RSV infection resulted in ICERs of £19 168, £18 174 & £1185 per QALY for high-risk infants with, CLD and the premature infant groups, <29 wGA and 29–32 wGA respectively compared to no prophylaxis. All results are below the accepted NICE threshold of £30 000 /QALY thus demonstrating cost-effectiveness. The baseline ICER for the 33–35 wGA subgroup was above this threshold however, sensitivity analysis considering risk-factors in this subgroup showed that an increase in baseline risk of hospitalisation, from 7.2% to 11.24%, led to palivizumab becoming a cost-effective option.

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**Conclusions** Severe RSV infection in high-risk infants represents a significant cause of morbidity and mortality and is associated with a high economic burden. Palivizumab was found to be cost-effective compared to no prophylaxis in the UK in all of the subgroups considered, demonstrating a good use of NHS resources.

## P171 IMPACT OF HEPTAVALENT PNEUMOCOCCAL CONJUGATE VACCINE ON THE INCIDENCE OF CHILDHOOD PNEUMONIA SEEN IN HOSPITAL IN THE NORTH EAST OF ENGLAND

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**Background** Community-acquired pneumonia (CAP) is a common childhood infection. In September 2006, heptavalent pneumococcal conjugate vaccine (PCV7) was added into the UK national immunisation programme. Data from this study were compared with those from a similar study undertaken in the same hospitals in 2000–2001 to describe the disease epidemiological trend.

**Aim** To evaluate the impact of PCV7 on the incidence of all causes childhood CAP.

**Methods** A prospective population-based study including 11 hospitals in the North East of England from August 2008 to July 2009. Eligible cases were all children aged 0–16 years who presented with clinical and radiological features of pneumonia. Demographic and clinical details were recorded.

**Results** Five hundred and seventy-six cases were initially identified, 34 of them had normal chest x-ray and were removed after validation, leaving a total of 542 cases eligible for enrolment (57.7% males; 73.8% under-five). The rate of empyema complication was 5.3%. Lobar consolidation was reported in 29.9%, and pleural effusion was present in 9.6% of the chest x-rays. PCV7 uptake was 88.9% among the eligible group, which is similar to that recorded nationally in the NHS Immunisation Statistics for England 2008–2009. In comparison with the data from 2001 study, there were 28% fewer cases of CAP in 2009 study. The incidence of CAP decreased from 14.4 cases per 10 000 children in 2001 to 11.8 cases per 10 000 children in 2009 (95% CI 0.74 to 0.92).

**Conclusion** This study suggests that following the introduction of PCV7, the incidence of childhood pneumonia seen in hospital has decreased since 2001.

## P172 CHANGES IN PNEUMOCOCCAL SEROTYPE DISTRIBUTION OF PAEDIATRIC EMPYEMA IN THE AGE OF PNEUMOCOCCAL CONJUGATE VACCINES

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**Introduction** Pneumococcal infection is the leading cause of paediatric empyema in the UK. The seven valent pneumococcal vaccine (PCV-7) was introduced to the UK routine immunisation schedule in September 2006 and replaced in April 2010 with a 13 valent vaccine (PCV-13). Concerns have been raised in several countries about serotype replacement disease in paediatric empyema following the introduction of PCV-7. We have monitored changes in pneumococcal serotype distribution to determine whether there is evidence of serotype replacement in culture negative paediatric empyema in England following introduction of PCV-7 and PCV-13.

Abstract P172 Table 1

| Serotype | 2006/2007 (n=74) | 2009/2010 (n=107) | Incidence rate ratio (95% CI) |
|---|---|---|---|
| 1 | 46 | 50 | 1.09 (0.71 to 1.66) |
| 3 | 11 | 35 | 3.18 (1.58 to 6.93)* |
| 4 | 1 | 0 | 0.33 (0 to 15.41) |
| 5 | 0 | 2 | 4.99 (0.21 to 6625) |
| 7A/F | 0 | 10 | 20.96 (1.83 to 22872)* |
| 14 | 6 | 0 | 0.08 (0 to 1.00)* |
| 19A | 5 | 7 | 1.40 (0.38 to 5.58) |
| 23F | 1 | 0 | 0.33 (0 to 15.41) |
| 6A/C | 0 | 1 | 2.99 (0.07 to 4600) |
| 6B | 3 | 0 | 0.14 (0 to 2.52) |
| 9V | 1 | 0 | 0.33 (0 to 15.41) |
| Non-assay serotype | 0 | 2 | 4.99 (0.21 to 6625) |

| Serotype | 2006/2007 (n=74) | 2009/2010 (n=107) | p Value |
|---|---|---|---|
| PCV—7 | | | |
| PCV-7 serotypes | 12 (16%) | 0 | <0.001 |
| Non PCV-7 serotypes | 62 (84%) | 107 (100%) | |
| PCV—13 | | | |
| PCV-13 serotypes | 107 (98%) | 2 (1.8%) | 0.68 |
| Non PCV-13 serotypes | 108 (96%) | 4 (3.6%) | |

*Denotes statistical significance.

**Methods** In September 2006, the Health Protection Agency established enhanced surveillance of paediatric culture negative empyema for England in collaboration with members of the British Paediatric Respiratory Society. Samples were forwarded from admitting hospitals, those that were pneumococcal PCR positive underwent non-culture serotyping using a multiplex antigen detection assay capable of detecting 14 serotypes/groups (1, 3, 4, 5, 6A/C, 6B, 7F/A, 8, 9V, 14, 18, 19A, 19F and 23F). Fisher's exact test was used for analysis of count data and incidence rate ratios calculated for individual serotypes.

**Results** 420 pleural fluid samples from 413 patients were tested. Four serotypes/groups contributed more than 85% of the total serotypes detected (Serotype 1–42.4%, 3–24.3%, 7A/F–10.2% and 19A–8.8%). Changes in individual serotypes and overall counts are shown in Abstract P172 table 1. PCV-7 serotypes initially contributed 16% of those detected but in 2009/2010 none were detected ($p<0.001$). There was an increase in the detection of non-PCV-13 serotypes in 2010/2011 although this rise was non-significant (Pre: 1.8%, Post 3.6%, $p=0.68$).

**Conclusions** No PCV-7 serotypes were detected in the final year before it was replaced by PCV-13, suggesting that PCV-7 was effective in preventing empyema due to these serotypes. There were significant increases in non-vaccine serotypes/groups, notably 3 and 7A/F, consistent with serotype replacement disease and mirroring changes in invasive pneumococcal disease as a whole. The increase in disease caused by non-PCV-13 serotypes in 2010/2011 highlights the need for ongoing active surveillance. Future changes in serotype distribution are likely, and these may alter the clinical profile of empyema.

## P173 COMPARISON OF PRIMARY PLEURAL DRAINAGE STRATEGIES IN PAEDIATRIC EMPYEMA

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