UK; [2]Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK; [3]Health Protection Agency North East, Newcastle upon Tyne, UK; [4]University of Glasgow, Glasgow, UK

Introduction Drainage of infected pleural fluid is a key component in the management of paediatric empyema. There is significant controversy regarding management policy resulting in substantial variation in treatment between tertiary centres in the UK. We have compared different primary pleural drainage strategies using a multicentre cohort design.

Methods Demographic and clinical data on cases of paediatric empyema undergoing pleural drainage were obtained from 19 centres from September 2006 until March 2011. Primary management strategy was defined as that used in the first 48 h of pleural drainage. Robust multivariate survival models were used to analyse length of stay (LOS) and incorporated a frailty term to account for institutional differences. All models were adjusted for age, sex, length of pre-hospital illness, comorbidity and intensive care admission. Fisher's exact test was used to compare readmission and pneumothorax rates.

Results Four pleural drainage strategies were recorded in 637 cases (56% male, median age 4.3 years)—Thoracocentesis without fibrinolysis (TC alone, n=35), Thoracocentesis with fibrinolysis (TC-Fib, n=286), Video assisted thoracoscopic surgery (VATS, n=18) and open Thoracotomy (Tho, n=295). Median tertiary LOS was 8 days (range 3–33) and median total hospital stay (THS) 11 days (range 5–43). Results of LOS analysis are shown in Abstract P173 table 1. In comparison to TC-Fib there were no significant differences in either LOS measure for VATS or Tho. TC alone was associated with a 44% increase in LOS at the tertiary centre and a 36% increase in THS, although the THS effect was of borderline statistical significance. There were significant differences in the rates of pneumothoraces between treatment groups (TC alone 11.4%, TC-Fib 4.2%, VATS 0% and Tho 1.69%, p=0.023) but no differences in readmission rates.

Abstract P173 Table 1

Primary pleural drainage strategy	Hazard	Estimated change in LOS (%)	95% CI	p Value
Length of stay at tertiary centre				
Chest drain and fibrinolysis	Reference			
Chest drain alone	0.56	+44%	0.36 to 0.87	0.011
VATS	0.81	+19%	0.46 to 1.45	0.49
Thoracotomy	1.28	−28%	0.88 to 1.85	0.20
Total hospital stay				
Chest drain and fibrinolysis	Reference			
Chest drain alone	0.64	+36%	0.41 to 1.01	0.053
VATS	0.82	+18%	0.45 to 1.47	0.48
Thoracotomy	1.40	−40%	0.95 to 2.08	0.093

Conclusions Thoracocentesis alone is associated with substantially increased length of hospital stay and increased risk of pneumothorax. There were no significant differences in length of stay or readmission rates between drainage with fibrinolysis, VATS and thoracotomy. Both thoracotomy and VATS were associated with lower risk of pneumothorax but given the overall small number of pneumothoraces this finding should be interpreted with caution.

P174 EMERGENCE OF PNEUMOCOCCAL SEROTYPE 19A AS A CAUSE OF SEVERE COMPLICATED PNEUMONIA WITH EMPYEMA IN CHILDREN IN ENGLAND

doi:10.1136/thoraxjnl-2011-201054c.174

[1]D A Spencer, [2]M F Thomas, [3]C L Sheppard, [4]M Guiver, [3]R C George, [5]R Gorton, [6]J Y Paton, [1]C Simmister, [1]D Cliff, [2]M A Elemraid, [1]J E Clark, [2]S P Rushton. [1]Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK; [2]Newcastle University, Newcastle-Upon-Tyne, UK; [3]Respiratory and Systemic Infections Laboratory, Health Protection Agency, London, UK; [4]Health Protection Agency North West, Manchester, UK; [5]Health Protection Agency North East, Newcastle upon Tyne, UK; [6]University of Glasgow, Glasgow, UK

Introduction The severity of pneumococcal empyema varies according to serotype. Invasive disease due to serotype 19A has become a major concern, particularly in the USA and Asia with an increasing incidence of virulent often antibiotic resistant variants. This has not been a significant problem in the UK until now. We describe changes in the incidence of this problem in England and the characteristics of serotype 19A disease.

Methods Data on paediatric empyema patients requiring pleural drainage between September 2006 and March 2011 were collected from 19 collaborating UK-ESPE centres. Pneumococcal serotypes were identified by non-culture multiplex polysaccharide antigen detection assay on culture negative pleural fluid. Kruskal–Wallis and Fisher's exact test were used for continuous and categorical variables. Multivariate models were used for length of stay data.

Results The incidence of empyema due to *S pneumoniae* serotype 19A more than quadrupled from 0.48 in 2006/2007 to 2.41 cases per million children in 2010/2011 (p=0.03). Of cases where full clinical details were available (n=12), 25% had a positive blood culture but all had culture negative pleural fluid. No evidence of antibiotic resistance was reported. Cases of 19A were significantly younger compared to other pneumococcal cases (median 2.0 years vs 4.3 (p=0.004)), had more reported complications (33% vs 11% (p=0.047)), were more likely to have been admitted to intensive care (50% vs 12% (p=0.008)) and to have required assisted ventilation (50% vs 9% (p=0.003)). Duration of hospital admission at the centre managing the empyema was increased by >50% in patients with 19A disease compared to all other serotypes (adjusting for age/sex—HR: 0.47, 95 % CI 0.24 to 0.91, p=0.024). One 19A case died, no further deaths were reported.

Conclusions Empyema due to *S pneumoniae* serotype 19A infection is a particularly serious disease. The incidence of this problem has increased dramatically. Prevenar 7©, the first version of the conjugate pneumococcal vaccine introduced into the UK vaccination programme did not offer protection against this serotype, the second generation vaccine Prevenar 13© introduced in 2010 contains antigen for 19A, but continued surveillance will be required to determine whether this is effective in our population.

P175 MANTOUX OR GAMMA INTERFERON (IGRA)—WHICH TEST IS BEST IN CHILDREN?

doi:10.1136/thoraxjnl-2011-201054c.175

[1]C Mount, [2]M Helbert, [3]C Bell, [1]C Murray, [1]F Child. [1]Royal Manchester Children's Hospital, Manchester, UK; [2]Central Manchester Foundation Trust, Manchester, UK; [3]Manchester Royal Infirmary, Manchester, UK

Introduction NICE guidelines recommend a Mantoux threshold of 15 mm induration to trigger investigation for tuberculosis (TB), with IGRA tests used as second line in selected groups. Little data are available about the role of the two tests in the diagnosis of active TB. Emerging evidence suggests IGRA tests may be more sensitive in identifying TB infection in children.

Aim To explore the relationship between Mantoux and IGRA in children attending a paediatric TB clinic in Manchester.

Hypothesis A Mantoux threshold of ≥15 mm induration underestimates TB infection in children.

Method All children aged 0–17 years referred to the TB service at Central Manchester Foundation Trust between Jan 2009 and May 2011 were included. Initial screening included symptom review and Mantoux testing. Based on induration at 48–72 h, Mantoux tests were defined as negative <6 mm or positive ≥6 mm for those with no prior BCG, and negative <10 mm, borderline 10 to ≥15 mm or