Understanding the changing epidemiology of paediatric empyema: the relationship with pneumonia

MF Thomas[1,2], SP Rushton[2], MDF Shirley[2], MA Elemraid[3], JE Clark[4], R Gorton[5], DA Spencer[1]
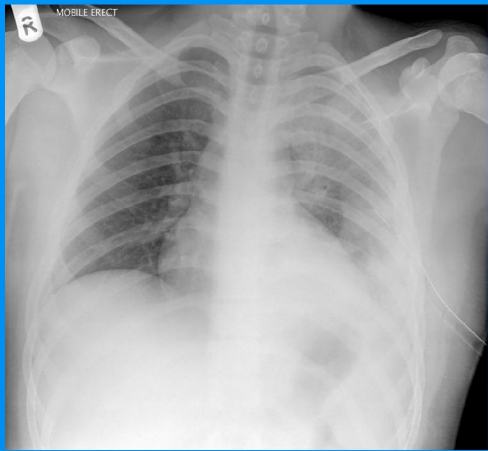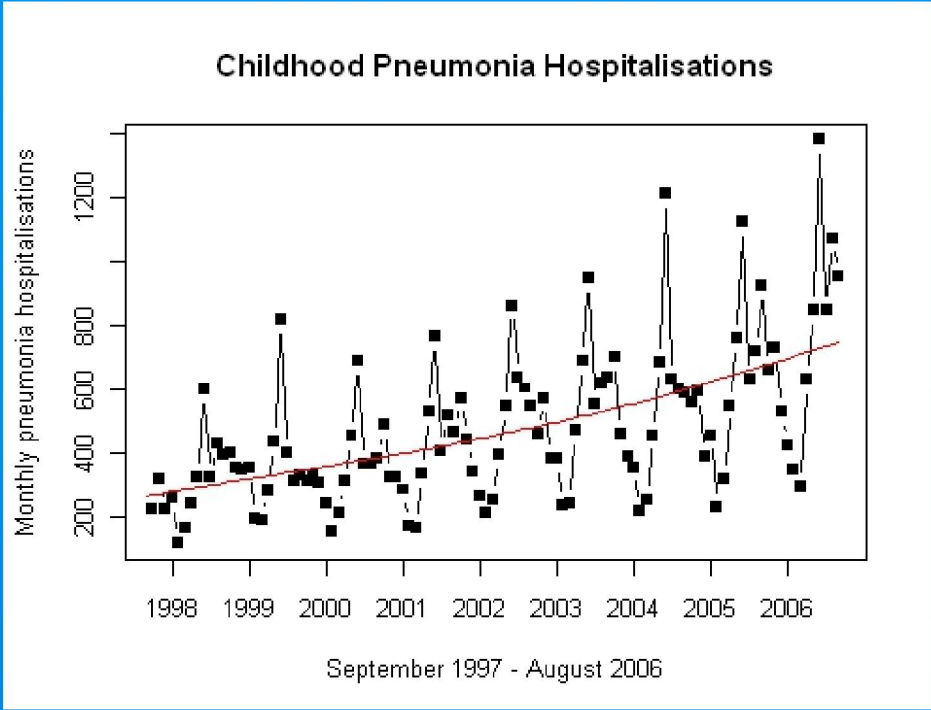
Newcastle University

Health Protection Agency

Figure 1: A chest x-ray of a child undergoing pleural drainage of a thoracic empyema

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Figure 2: Monthly isolations of pathogens from 1997-2006.

Childhood Pneumonia Hospitalisations

Organism	Co-efficient	95 % CI	P-value
	Pneumonia		
GAS	0.005	-0.001;0.011	0.12
S. pneumoniae	**0.009**	**0.007;0.011**	**<0.001***
S. aureus	0.001	-0.001;0.004	0.21
M. pneumoniae	0.001	-0.0001;0.003	0.09

Childhood Empyema Hospitalisations
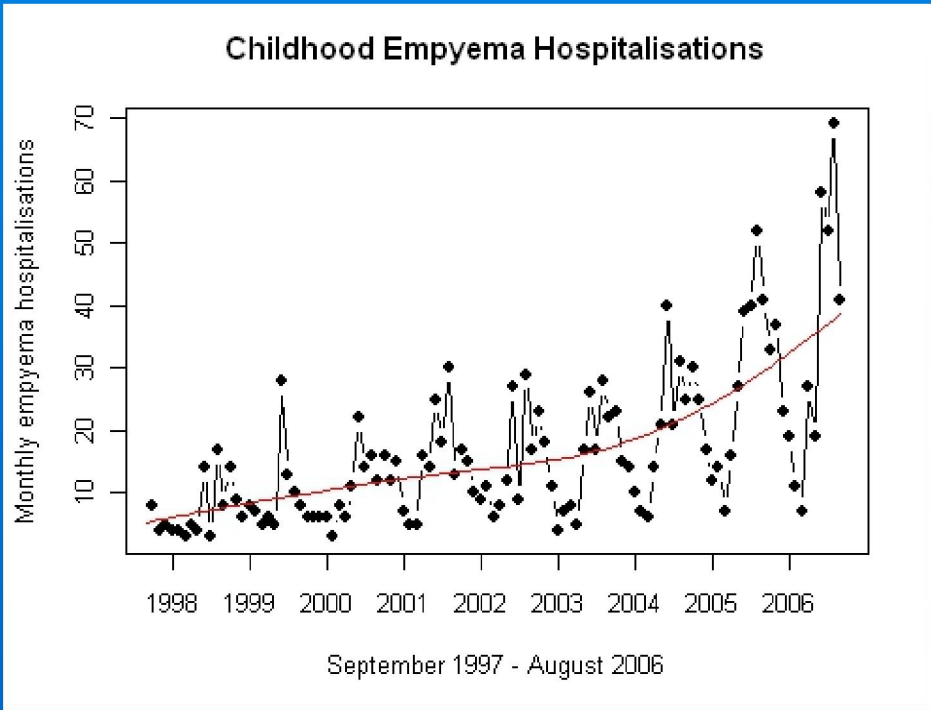
Organism	Co-efficient	95 % CI	P-value
	Empyema		
GAS	**0.014**	**0.003;0.025**	**0.02***
S. pneumoniae	**0.010**	**0.008;0.013**	**<0.001***
S. aureus	-0.001	-0.005;0.003	0.49
M. pneumoniae	-0.001	-0.002;0.001	0.50

Proportion of Empyema to Pneumonia Hospitalisations
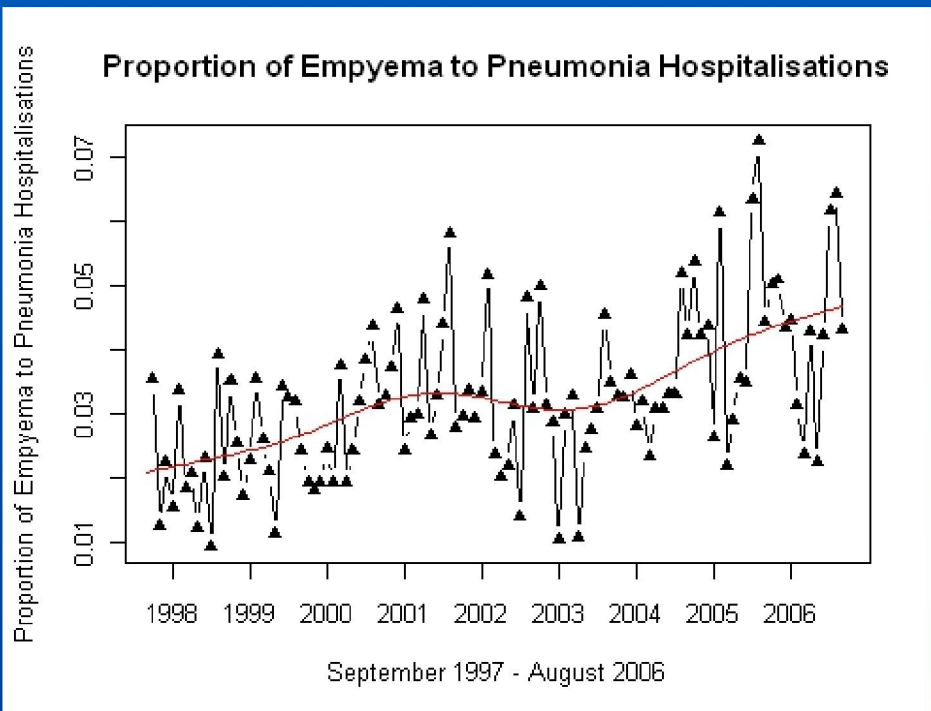
Organism	Co-efficient	95 % CI	P-value
	Proportion of empyema to pneumonia		
GAS	**0.00035**	**0.00003;0.00067**	**0.03***
S. pneumoniae	0.00003	-0.00005;0.0001	0.53
S. aureus	-0.00007	-0.00018;0.00004	0.21
M. pneumoniae	-0.00003	-0.00008;0.00002	0.19

Figure 3: Monthly pneumonia hospitalisations, empyema hospitalisations and proportion of empyema to pneumonia hospitalisations per month. Individual tables include results of time series modelling for each variable and all included pathogens.
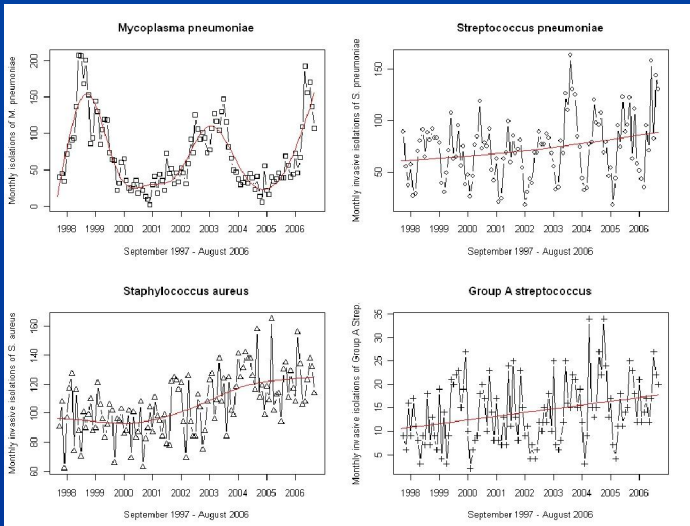
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Conclusion

The escalation in paediatric empyema appeared associated with a rise in pneumonia driven by *S. pneumoniae* and an increase in the progression of pneumonia to empyema driven by GAS.

Acknowledgements

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