

## NASOPHARYNGEAL COLONISATION WITH PNEUMOCOCCUS IS FREQUENTLY ASSOCIATED WITH SYMPTOMS WHOSE SEVERITY IS STRONGLY CORRELATED WITH CARRIAGE DENSITY

F Rodrigues, D Foster, G Gonçalves, A Brett, L Januário, A Finn

**Background and aims:** Nasal colonisation with pneumococcus (Pnc) is generally assumed to be asymptomatic. We hypothesised that it is associated with upper respiratory symptoms.

**Methods:** 439 children (4-75 months, 233 males) attending nurseries in Coimbra, Portugal each had alginate nasal swabs taken and stored (STGG broth) in February 2009. At sampling, nurses obtained a single symptom score for nasal discharge, nasal blockage and sneezing from parents as follows: 0 - none; 1 - mild - slight; 2 - moderate - definite; 3 - severe – bad. Swabs were cultured & bacteria identified using standard methods. For pneumococcus, density was scored as 1-5, <20, <50, <100, >100 colonies.

**Results:** 231 swabs (52.6%) were positive for Pnc. Among 428 children for whom scores were available, the proportion of children colonised with Pnc rose progressively with rising symptom scores (table)( $\chi^2$  for trend:  $P=0.00023$ ). Scores and colonisation density were strongly correlated ( $P=0.00021$ ). Colonisation with *H. influenzae* (Hflu) ( $n=131$ ) was similarly associated with symptoms whereas *S. aureus* ( $n=62$ ) colonisation showed the opposite trend.

**Conclusion:** These results show that uncomplicated nasopharyngeal colonisation with Pnc and Hflu but not *S. aureus* in healthy children causes nasal symptoms which are correlated to carriage density. Consistent with known proinflammatory effects of Pnc on respiratory epithelium, such symptoms may promote transmission.

Symptom score	0	1	2	3
Pnc neg (%)	63 (60.6)	106 (47.3)	34 (38.2)	2 (18.2)
Pnc pos (%)	41 (39.4)	118 (52.7)	55 (61.8)	9 (81.8)
Total	104	224	89	11