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Title: LSC 2013 abstract - Children with chronic suppurative lung disease have a Th2 polarised immune response to H. influenzae

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Body: Introduction: Non-typeable H. influenzae (NTHi) is the most common bacterial pathogen associated with chronic suppurative lung disease (CSLD). Limited data exists regarding the adaptive immune response to NTHi and the role it may play in the aetiology of CSLD in children. Aim: To determine if children with CSLD have a suboptimal adaptive immune response to NTHi. Method: NTHi-stimulated cytokine (IFN γ , IL-13, IL-10) production from peripheral blood mononuclear cells were measured in 83 children with CSLD and 51 healthy control children (HC). Plasma antibody titres (IgG1, IgG4) to the H. influenzae outer membrane proteins P4 and P6 were also measured in 40 CSLD and 32 HC. Results: Compared to HC, children with CSLD produced significantly more IL-13 and significantly less IFN γ and IL-10 in response to NTHi. There was no significant difference in P4 or P6 IgG1 between the two groups. However, children with CSLD produced significantly lower IgG4 to both P4 and P6. IL-10 was positively correlated with P4 IgG4 (p=0.022) and P6 IgG4 (p=0.003). Conclusion: Children with CSLD elicit a non-protective Th2 type immune response and a suboptimal IgG4 antibody response towards NTHi. Furthermore, IL-10 may be important in driving appropriate antibody responses. Studies are underway to better understand the relationship between the Th2 polarised and antibody response to NTHi in the pathogenesis of CSLD. Table 1 Cytokine levels (ng/ml) and antibody titres (arbitrary units); median (IQR).