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**Title:** Temporal changes in the prevalence of respiratory pathogens in children and adolescents with cystic fibrosis (CF)

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**Body:** Introduction: Changes in the prevalence of respiratory pathogens in CF may reflect improved therapeutic strategies and clinical practice within a CF centre. Aims: We hypothesized that active microbiological surveillance and a low threshold for long term nebulised antibiotics might reduce the prevalence of respiratory pathogens in patients with CF. Methods: Retrospective review of data of patients under full care at a paediatric CF centre in Cardiff between 1998(n=80) and 2011(n=70). We calculated the number of isolates for common pathogens from 1998 onward (expressed as a percentage for each year); mean number of respiratory cultures taken for each patient per year; and the rate of chronic P aeruginosa (Lee 2003) from 2002 onward. Changes in prevalence over time were assessed by linear regression. Results: Non-significant increase in mean (SD) number of respiratory cultures from 5.3(3.22) to 7.4(2.89) per patient/year. The prevalence of P aeruginosa infection decreased significantly from 43.8% in 1998 to 14% in 2011( $r = -0.80$ ,  $p = 0.001$ ), while chronic P aeruginosa infection decreased from 19% in 2002 to 2.9% in 2011( $r = -0.92$ ,  $p < 0.0001$ ). We also observed significant decreases in the prevalence of A fumigatus ( $r = -0.92$ ,  $p < 0.0001$ ), H influenzae ( $r = -0.58$ ,  $p = 0.03$ ) and B Cepacia ( $r = -0.78$ ,  $p = 0.001$ ), and a non-significant reduction in the prevalence of S Aureus with non-significant increases in the prevalence of S maltophilia or MRSA. Conclusion: Active microbiological surveillance and a low threshold for long term nebulised antibiotics was associated with significant reductions in both the prevalence of P aeruginosa infection and the rate of chronic P aeruginosa infection.