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**Title:** Frequency and pathogenicity of rhinovirus associated pulmonary exacerbations in patients with cystic fibrosis

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**Body:** Objectives: Human rhinovirus (HRV) is associated with pulmonary exacerbations in patients with CF. With sensitive RT-PCR techniques HRV is readily detected and new strains are being identified. In asthma, children with HRV group C have been shown to have more severe exacerbations. The aim of this project was to establish the frequency of each HRV group during exacerbations and to assess whether any HRV group is more pathogenic. Methods: Viral throat swabs were taken on all adult exacerbations between Dec 2008 and May 2011. Positive HRV samples were stored and typed in more detail. Date matched non-CF samples positive for HRV were used as community controls. To allow typing the extracted viral RNA was transcribed into cDNA. The resulting cDNA underwent two rounds of nested PCR reaction to produce amplicons of the VP4/VP2 region. This was then sequenced to allow genetic typing of the specimens. The HRV groups were then compared using demographic and clinical data obtained from patient records. Conclusion: HRV was identified in 7% of pulmonary exacerbations. 126 positive samples were stored and typing was possible in 104 of the isolates. HRV group A was identified in 57 (55%) of isolates, group B in 23 (22%), and group C in 24 (23%). The frequency of HRV group A was higher than that seen in community (55% vs 40%). Some patients had viral persistence for several weeks with the same serotype. Virus associated exacerbations had significantly greater impact on lung function, length of treatment, and time to next exacerbation compared to matched patients without a virus. However, no individual HRV group appeared more pathogenic and the detrimental effects were seen with all groups.