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Title: Variation in acute exacerbation rates (AER) of COPD over 5 years

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Body: The previous year's AER is used to grade COPD severity and is felt to be stable year to year. We wished to evaluate AER variation in our practice. Patients with symptoms compatible with COPD, >10 pack-year smoking history, and a post bronchodilator FEV₁/FVC<0.70 had AERs prospectively recorded for 5 years. Change in sputum purulence and/or volume >2 days treated with antibiotics ± prednisone defined exacerbation. Spirometry and COPD Assessment Tests were measured when well. Cumulative average AERs were calculated for each patient. Distribution of the 157 subjects by the old GOLD stage was; I 23 (15%), II 89 (57), III 38 (24), IV 7 (4) and new GOLD grade; A 24 (15), B 59 (38), C 7(4), D 67 (43). Figure 1A shows the number of subjects vs. AER by year. The AERs are stable from year to year for the group as a whole. Figure 1B shows the number of subjects vs. AERs by each patient's cumulative average AER by year. The AERs are stable in the >3 group and there are changes which plateau by 3 years in the >0≤1, >1≤2 and >2≤3 groups. The 0 group declines progressively.

This small population data demonstrates fluctuation in AERs from year to year in most patients and the cumulative average AER seems to stabilize by 3 years. Those with AER>3 initially continue to experience this high AER. Only 5% of patients remain exacerbation free by the end of 5 years. These longitudinal observations require validation in larger, more regionally diverse populations.