Explaining Hospital Length of Stay of Patients Admitted with Seasonal Influenza Infection

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Background: The annual occurrence of seasonal influenza virus poses a significant health burden worldwide. There is evidence that certain populations are more at risk for influenza infection, such as cigarette smokers, the elderly, and patients with cardiopulmonary disorders. In some cases influenza presents itself as a nosocomially acquired infection. Thus, monitoring the length of time that patients are hospitalized with influenza is of clinical importance. The objectives of this study were to indentify predisposing characteristics to hospitalization with influenza and to determine whether cigarette smoking correlates to extended LOS (length of stay in hospital). It was hypothesized that cigarette smoking and presence of COPD (Chronic Obstructive Pulmonary Disease) correlates most significantly to prolonged LOS.
Methods: Information was collected from a retrospective cohort of adult patients admitted to FAHC (Fletcher Allen Health Care) with influenza infection during the 2012-2013 flu season. Univariate analyses were performed to compare explanatory variables with LOS as an outcome. A generalized linear model was constructed to further explain correlations with LOS.
Results: Among 54 patients, the median age was 73.5 and the median BMI (Body Mass Index) was 26.1 kg/m^2. Exactly two-thirds of the patient cohort were smokers, with just under one-third of the patients diagnosed with COPD. Univariate analyses determined that patients with COPD, diabetes, and more than one comorbid condition significantly increased LOS (p = 0.0129*, 0.0191*, 0.0046*; respectively). A generalized linear model revealed that patients with COPD and more than one comorbid condition were estimated have a significantly prolonged LOS (p = 0.0266* and 0.0079*, respectively). Smoking status was not determined to be a significant explanatory variable in either set of analysis.
Conclusions: Significant indicators for lengthier LOS are explained by diagnosis of COPD and patients extensive comorbidities. Promoting the use of vaccination for these at-risk individuals is imperative.