Predicting future treatment needs from annual review data
L Thompson1, D.D. Derry1, D.J. Waine1. 1Derriford Hospital, Adult CF Centre, Plymouth, United Kingdom

Objectives: From April 2012, UK centres will be funded based on treatment patients needed the 12 months leading to annual review the previous calendar year. Thus, funding will be based on data 3–15 months old, potentially underestimating patients’ health needs. We investigated whether data from the previous calendar year (only 3 months old) were better at predicting subsequent treatment needs.

Methods: The following data were collected retrospectively from all patients treated at our centre from 2008 to 2011: number of in-patient days (IP days), number of days of iv antibiotics (IV days), and month of annual review. Wilcoxon matched-pairs signed-rank and Kolgorov–Smirnov tests were used to test whether data from the previous calendar year were better than annual review data from that year at predicting treatment needs the following calendar year.

Results: 103 patient-years (41 patients) were analyzed. IP days differed by a mean 2.9 days (range −66 to +132) from the previous calendar year, compared to a mean 3.5 days (range −100 to +144) from annual review. IV days differed by a mean 3.2 days (range −97 to +178) compared to a mean 5.1 days (range −78 to +218). Differences in the means were not significant (p = 0.33, Wilcoxon). When data were analyzed to look at the variation in treatment band there was no significant difference.

Conclusion: Though treatment needs for some individuals changed dramatically from year to year, overall the treatment needs of patients in a given calendar year were reasonably predicted by the treatment given as measured at patients’ previous annual reviews. There would be no benefit in using calendar year data rather than annual review data.

Changing incidence and thresholds for pulmonary exacerbation
D.R. VanDevanter1, E.P. Elkin2, D.J. Pasta2, W.J. Morgan3, M.W. Konstan1. 1Case Western Reserve University School of Medicine, Cleveland, United States; 2ICON Late Phase & Outcomes Research, San Francisco, United States; 3University of Arizona, Tucson, United States

Background: Intraavenous (IV) antibiotic (ABX) treatments for CF pulmonary exacerbations (PEx) are associated with poor lung function. We studied how changes in CF pulmonary health have affected PEx treatment incidence.

Methods: IV and oral/inhaled (nonIV) ABX PEx treatment incidence from 1995–2005 stratified by age group (<6, 6–12, 13–17, ≥18 yr) was calculated from the Epidemiologic Study of CF Modified sign/symptoms scores (range 0–4) associated with PEx treatment [Rabin et al., Ped. Pulm. 2004; 37: 400] were calculated.

Results: 213,054 PEx ABX treatments occurred over 185,981 patient years (pt-yr) studied. ABX treatment (Tx) incidence fell 0.07% (R2 = 0.85; P < 0.001) from 1.68 Tx/pt-yr in the ≥18 yr group and 0.04/yr (R2 = 0.74; P < 0.001) in the 13–17 yr group, while rising 0.03/yr from 0.55 Tx/pt-yr (R2 = 0.63; P = 0.004) in the <6 yr group, the latter due to a 0.04/yr (R2 = 0.64; P = 0.001) nonIV ABX treatment increase. Tx incidence was unchanged in the 6–12 yr group. 30.37% PEx were evaluable for Rabin clinical score. Mean clinical scores at nonIV ABX treatment dropped 0.01–0.02 units/yr (R2 range 0.34–0.77; P < 0.001 to P = 0.06). IV ABX treatment score changes showed no pattern by age, with <6 yr group mean score dropping 0.03 units/yr (R2 = 0.45; P = 0.02).

Conclusions: PEx ABX treatment incidence changed significantly from 1995–2005, with children receiving more ABX treatments and adults receiving fewer. Clinical thresholds for intervention declined over the 11-year study period for nonIV ABX treatment in all age groups, and for IV ABX treatment in patients aged <6. These data underscore the importance of including nonIV ABX treatments and treatment thresholds in PEx analyses.