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**Proceedings Paper:**

Hoo, Z., Wildman, M.J., Curley, R. et al. (1 more author) (2016) Rescue therapy within the UK CF registry: an exploration of the predictors of IV antibiotic use amongst adults with cystic fibrosis. In: Journal of Cystic Fibrosis. ECFS conference 2016, 08-11 Jun 2016, Basel, Switzerland. Abstracts of the 39th European Cystic Fibrosis Conference, 15 (Suppl 1). Elsevier , S35-S35.

[https://doi.org/10.1016/S1569-1993\(16\)30184-9](https://doi.org/10.1016/S1569-1993(16)30184-9)

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Topic: 15 Epidemiology / Registry

**Title: Rescue therapy within the UK CF Registry: an exploration of the predictors of IV antibiotic use amongst adults with CF**

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**Text: Background**

IV antibiotics are needed for rescue when preventative therapy fails to achieve stability. Understanding the distribution of IV days among people with CF can provide insight into the care they need.

**Aim**

To determine baseline characteristics that are associated with higher IV use among adults with CF

**Methods**

The 2012 & 2013 data on age, sex, BMI, FEV1, pancreatic status, Pseudomonas status & CF related diabetes for those aged  $\geq 16$  years were obtained from the UK CF registry. IV days data for 2011-2013 were also obtained. Those on ivacaftor were excluded. Multiple regression was performed using current year IV days as the dependent variable and demographic variables & prior year IV days as the covariates for both 2012 & 2013. Based on these results, tree-based method (Zhang & Bracken, AJE 1996) was used to divide the study sample into clinically meaningful subgroups.

**Results**

For both years, prior year IV use was the strongest predictor for current year IV use, followed by FEV1. People with prior year IV use  $>14$  days has a 4-6 fold increase in IV use for the subsequent year.

	Prior year IV $\leq 14$ days and current FEV1 $\geq 70\%$	Prior year IV $>14$ days and current FEV1 $\geq 70\%$	Prior year IV $\leq 14$ days and current FEV1 $<70\%$	Prior year IV $>14$ days and current FEV1 $<70\%$	One way ANOVA (comparing across the 4 groups) p-value
2012: number of adults with CF	1617	485	1150	1480	
2012: IV days, mean (SD)	5.5 (11.2)	27.7 (28.1)	12.3 (19.9)	55.8 (50.2)	$< 0.001$
2012: IV days, median (IQR)	0 (0-10)	22 (11-41)	0 (0-15)	43 (24-74)	
2013: number of adults with CF	1678	440	1148	1437	
2013: IV days, mean (SD)	4.7 (9.9)	26.6 (24.5)	12.8 (20.4)	53.8 (46.0)	$< 0.001$
2013: IV days, median (IQR)	0 (0-0)	24 (7-41)	0 (0-14)	42 (24-71)	

[IV use by group]

**Conclusion**

People with prior high levels of rescue will often continue to need high levels of rescue even if they have good lung function. The reasons for this require further investigations.

We thank the UK CF Registry for supplying the data for this analysis

Preferred  
Presentation Oral Presentation  
Type: