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Title: Predicting hospital readmission in patients discharged following acute exacerbations of COPD (AECOPD)

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Body: Background Readmission rates following hospitalisation for AECOPD are high. The ability to accurately identify patients at a high risk of readmission could help clinicians effectively direct resources and interventions. Objective To identify predictors of readmission in patients surviving hospitalisation for AECOPD. Method Clinical data from consecutive patients surviving hospitalisation for AECOPD were collected. All variables associated ($p<0.10$) with outcome (readmission to hospital, or death at home without readmission, within 90 days of discharge) on univariate analysis were entered in to a multivariate logistic regression analysis. Results 824 patients were recruited: mean (SD) age = 72.3 (10) years; 54.2% were female; mean (SD) FEV_1 = 44.0 (17.4) % predicted; and median (IQR) length of stay = 6 (4 to 11) days. 37.3% of patients were readmitted or died within 90-days. The strongest three predictors of outcome were: stable state dyspnoea (measured using the extended MRC Dyspnoea Scale); the number of hospitalisations in the preceding year; and recent unexplained weight loss. The full regression model (table 1) showed good discrimination for 90-day readmission (AUROC = 0.751, 0.717 to 0.783).

Table 1. Independent predictors of readmission

Variable	Odds ratio (95% CI)	p value
eMRCD	1.69 (1.42-2.02)	<0.001
Admissions in the previous year	1.32 (1.18-1.48)	<0.001
Recent weight loss	1.66 (1.15-2.40)	0.007
Cor pulmonale or pedal oedema	1.56 (1.11-2.18)	0.010
Preadmission social care	1.62 (1.07-2.44)	0.021
Serum glucose, mmol/L	0.93 (0.87-1.00)	0.0402

Conclusion Hospital readmission is common and implementation of these simple prognostic indices may

help identify and manage those at a high risk of poor outcome.