Title: Does the effectiveness of pulmonary rehabilitation vary in patients with different baseline severity of symptoms classified by MRC grade?

Mrs. Emma 21470 Tucker emma.tucker@oxfordhealth.nhs.uk 1, Mrs. Rachel 21471 Lardner Rachel.Tucker@oxfordhealth.nhs.uk 1, Mrs. Joanne 21472 Riley joanne.riley2@oxfordhealth.nhs.uk 1 and Dr. Maxine 21473 Hardinge maxine.hardinge@ouh.nhs.uk MD 2. 1 Pulmonary Rehabilitation Team, Oxford Health NHS Foundation Trust, Oxford, United Kingdom, OX4 6HL and 2 Oxford Centre of Respiratory Medicine, Churchill Hospital, Oxford, United Kingdom, OX3 7LJ.

Body: Introduction Pulmonary rehabilitation (PR) as a treatment for chronic lung disease can result in clinically meaningful improvements in health related quality of life (HRQL), and exercise capacity. UK guidelines recommend referral of patients with MRC breathlessness grades 3 and over. However, patients with MRC grade 5 breathlessness are often housebound and less likely to be referred for PR. This study examined whether similar improvements in HRQL and exercise capacity were seen in patients with different MRC grades. Methods 490 patients were enrolled in a 7 week PR programme between April 2011 and March 2012. All patients completed Incremental Shuttle Walk Test (ISWT) to measure exercise tolerance and St Georges Respiratory Questionnaire (SGRQ) to measure health related quality of life, pre and post PR. The percentage of patients achieving the minimally important clinical difference (MICD) for ISWT (47.5 metres) and SGRQ (4 points) were calculated for each MRC group. Results 383 patients (78%) completed PR, 218 (57%) male: of these 179 (47%) had baseline MRC grade 3 (mean age 70.3), 173 (45%) MRC 4 (mean age 70), and 31 (8%) MRC 5 (mean age 75.3). Fewer patients in MRC grade 5 group (30%) achieved MICD for exercise capacity compared with MRC grade 3 (53%) and MRC grade 4 (61%): but a similar proportion of MRC grade 5 patients (48%) achieved MCID for HRQL measures (52% for both MRC grades 3 and 4). Conclusion Exercise capacity improves most after PR in patients with less breathlessness at baseline: however, even patients with severe breathlessness achieve similar clinically significant improvements in HRQL and should be referred for PR.