Project Title: Patients with COPD preferences, activities, and participation survey

NCT Number: NCT02970422

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Statistical Analysis

To assess individuals' airflow obstruction (disease severity), quartiles of $FEV_{1\%predicted}$ were used. Quartiles of $FEV_{1\%predicted}$ were used because we could not confirm that individuals' spirometry was done post-bronchodilator. Thus, we were unable to use the Global Initiative for Obstructive Lung Disease (GOLD) COPD staging system (23). Nevertheless, all individuals self-reported a physician diagnosis of COPD and were recruited through their healthcare providers who confirmed the diagnosis. Individuals were divided into quartiles based on their $FEV_{1\%predicted}$, with quartiles 1, 2, 3 and 4 representing those with mild (Q1), moderate (Q2), severe (Q3) and very severe (Q4) airflow obstruction, respectively. Only individuals with a FEV_1/FVC ratio <0.70 were including in the quartiles of airflow obstruction.

Individuals' breathlessness burden and exacerbation risk groups were based on their mMRC breathlessness scores and 12-month exacerbation history (20): group A (low breathlessness + low exacerbation risk), mMRC ≤ 1 with ≤ 1 exacerbation that did not lead to

hospital admission; group B (high breathlessness + low exacerbation risk), mMRC ≥2 with ≤1 exacerbation not leading to hospital admission; group C (low breathlessness + high exacerbation risk), mMRC ≤1 with ≥2 exacerbations or ≥1 exacerbation that led to hospital admission; and group D (high breathlessness + high exacerbation risk), mMRC score ≥2 and ≥2 exacerbations or >1 exacerbation that led to hospital admission.

Descriptive statistics were used to report individuals' daily and social participation and provide a picture of how respondents participated in each activity. The distribution of the scores for each activity was assessed based on quartiles of airflow obstruction, breathlessness burden and exacerbation risk, sex, age, and PR participation status. Using IBM SPSS Statistical software (v.23), chi-square analysis, with standardized residuals post-hoc analyses, were performed on the participation items individually to determine if the observed value differed from the statistically expected value for quartiles of airflow obstruction, breathlessness burden and exacerbation risk, sex, age, and PR participation status. To examine the barriers and facilitators to participation, descriptive statistics were used to identify the most common barrier/facilitator. A repeated measures analysis of variance (ANOVA) was used to determine if there was a significant difference between the barrier/facilitator that was selected the most often compared to all other barriers/facilitators.

Descriptive statistics were used to report individuals' healthcare and research priorities. The distribution of the scores for each activity was assessed based on quartiles of airflow obstruction and exacerbation burden and exacerbation risk. Using IBM SPSS Statistical software (v.23), chi-square analysis, with standardized residuals post-hoc analyses, were performed to determine if the observed number of responders for each healthcare and research topics differed

from the statistically expected value for airflow obstruction and exacerbation burden and exacerbation risk. Additionally, non-parametric tests were conducted to determine if there were any between group differences for the healthcare and research topics and airflow obstruction and exacerbation burden and exacerbation risk groups. A Kruskal-Wallis non-parametric test was conducted due to the non-normality of the data, as the mean for both healthcare and research topics was skewed. Individuals giving 10% of their time/funding was the most common response for each of the healthcare or research topics. Post-hoc analyses with Bonferroni corrections were also conducted.

For the secondary outcomes, one-way ANOVAs were used to determine mean group differences. However, for both FEV1% predicted and physical activity levels, a Kruskal-Wallis non-parametric test was conducted as the data was non-normal.