

## SUPPLEMENTARY MATERIAL

### MANUSCRIPT TITLE: Prevalence of comorbidities and impact on pulmonary rehabilitation outcomes

**Supplementary Table I: List of all individual comorbidities included under each disease category in order of prevalence in study cohort**

Circulatory	Digestive	Endocrine & Metabolic
<b>Hypertension (48.4%)</b> <b>Coronary artery disease (14.3%)</b> <b>Atrial fibrillation (11.7%)</b> <b>Heart failure (8.2%)</b> Stroke (4.9%) Cardiomyopathy (2.5%) Transient ischemic attack (2.3%) Peripheral artery disease (2.0%) Peripheral vascular disease (1.8%) Arrhythmia (1.0%) Mitral valve insufficiency (1.0%) Atherosclerosis (0.2%)	<b>GERD (42.4%)</b> Inflammatory bowel disease (2.7%) Hepatitis (1.8%)	<b>Dyslipidemia (26.0%)</b> <b>Type II diabetes (14.8%)</b> <b>Hypothyroidism (12.5%)</b> <b>Obesity (10.0%)</b> <b>Hyperthyroidism (12.5%)</b> Type I diabetes (0.4%)
Mental & Behavioural	Musculoskeletal & Connective Tissue	Nervous System
<b>Anxiety (29.5%)</b> <b>Depression (27.5%)</b> Bipolar (1.4%) Post-traumatic stress disorder (0.8%) Traumatic brain injury (post-concussion syndrome) (0.4%) Schizophrenia (0.2%) Substance abuse (0.2%)	<b>Osteoarthritis (21.5%)</b> <b>Osteoporosis (17.2%)</b> <b>Gout (5.7%)</b> Fibromyalgia (4.7%) Rheumatoid arthritis (1.8%)	Neuropathy (4.1%) Migraine (1.6%) Alzheimer's Disease (0.4%) Parkinson's Disease (0.4%) Multiple sclerosis (0.4%)
Malignant Neoplasms		
Respiratory & Intrathoracic Organs ( <b>Lung-7.4%</b> ) Breast (6.3%) Male Genital Organs (Prostate - 5.1%, Testicular-0.4%)	Female Genital Organs (Cervical-2.4%, Ovary-0.4%) Urinary Tract (Bladder-2.0%, Kidney-0.4%) Digestive Organs (Colorectal-1.6%, Esophageal-0.6%, Liver-0.2%)	Lymphoid, Hematopoietic & Related Tissue (Leukemia-1.2%, Lymphoma-0.8%) Thyroid and Other Endocrine Glands (Thyroid-0.4%) Bone and Articular Cartilage (Bone-0.2%)

Note: The only disease of the blood in the study population was Anaemia (8.6%), conditions in bold are those with a prevalence > 5.0%

**Supplementary Table II: Prevalence of comorbidities in COPD and ILD populations by sex**

	COPD (n=340)			ILD (n=66)		
	Total	F (n=174)	M (n=166)	Total	F (n=31)	M (n=35)
<b>Circulatory</b>	65.6	60.9	70.5	53.0	51.6	54.3
Hypertension	49.1	44.3	54.2	42.4	48.4	37.1
CAD	15.3	12.6	18.1	13.6	6.5	20.0
Atrial Fibrillation	11.5	8.6	14.5	6.1	6.5	5.7
Heart Failure	7.4	8.0	6.6	1.5	0	2.9
<b>Endocrine/ Metabolic</b>	46.8	47.1	46.4	51.5	58.1	45.7
Dyslipidemia	27.9	25.9	30.1	19.7	19.4	20.0
Type II Diabetes	11.5	10.9	12.0	21.2	16.1	25.7
Hypothyroidism	12.4	<b>19.0***</b>	5.4	15.2	<b>29.0**</b>	2.9
Obesity	9.4	12.1	6.6	13.6	12.9	14.3
<b>Digestive System</b>	44.1	<b>50.6*</b>	37.3	54.5	61.3	48.6
GERD	41.2	<b>48.3**</b>	33.7	51.5	54.8	48.6
<b>MSK/ connective tissue</b>	41.2	<b>48.9**</b>	33.1	39.4	<b>54.8*</b>	25.7
Osteoarthritis	22.1	<b>28.7**</b>	15.1	15.2	<b>29.0**</b>	2.9
Osteoporosis	18.8	<b>27.0***</b>	10.2	15.2	<b>22.6*</b>	8.6
Gout	5.3	3.4	7.2	7.6	0	<b>14.3*</b>
<b>Mental / Behavioural</b>	40.0	<b>52.3***</b>	27.1	43.9	<b>71.0***</b>	20.0
Anxiety	28.8	<b>36.8**</b>	20.5	33.3	<b>51.6*</b>	17.1
Depression	27.1	<b>36.2***</b>	17.5	28.8	<b>45.2**</b>	14.3
<b>Malignant Neoplasms</b>	19.7	<b>24.7*</b>	14.5	10.6	16.1	5.7
Lung cancer	7.1	8.6	5.4	4.5	6.5	2.9
<b>Nervous System</b>	10.3	13.2	7.2	9.1	6.5	11.4
<b>Blood (anaemia)</b>	7.9	9.2	6.6	6.1	3.2	8.6

Bold headings refer to categories, only individual comorbidities with prevalence > 5.0% are depicted.

CAD= coronary artery disease, GERD=gastroesophageal reflux disease, Full comorbidity list is provided in supplementary Table I (\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001).

**Supplementary Table III: Impact of demographics on achieving minimal important difference in health-related quality of life (HRQoL) in COPD and ILD subpopulations**

		<b>HRQoL (+ 0.5 units)</b>			
<b>COPD</b>		<b>CRQ-Dyspnea % responders (n=208)</b>	<b>CRQ-Fatigue % responders (n=208)</b>	<b>CRQ-Emotion % responders (n=207)</b>	<b>CRQ-Mastery % responders (n=207)</b>
<b>Age group</b>	< 65	67.3	78.2	<b>70.9*</b>	<b>81.8*</b>
	≥ 65	58.2	72.5	<b>55.3</b>	<b>67.1</b>
<b>mMRC</b>	0 or 1	<b>22.2*</b>	55.6	44.4	55.5
	2	<b>55.9</b>	82.4	47.1	76.5
	3	<b>69.2</b>	76.9	67.7	72.3
	4	<b>62.7</b>	74.6	59.3	74.6
<b>Sex</b>	F	<b>67.3*</b>	<b>82.7**</b>	<b>67.3*</b>	<b>80.0**</b>
	M	<b>53.1</b>	<b>64.3</b>	<b>50.5</b>	<b>60.8</b>
<b>O<sub>2</sub> use</b>	Y	56.3	<b>81.6*</b>	62.1	73.8
	N	64.8	<b>66.7</b>	56.7	68.3
<b>ILD</b>		<b>CRQ-Dyspnea % responders (n=36)</b>	<b>CRQ-Fatigue % responders (n=38)</b>	<b>CRQ-Emotion % responders (n=38)</b>	<b>CRQ-Mastery % responders (n=38)</b>
<b>Age group</b>	< 65	70.6	70.6	70.6	70.6
	≥ 65	52.6	57.1	57.1	71.4
<b>mMRC</b>	0 or 1	50.0	75.0	<b>50.0*</b>	25.0
	2	100.0	100.0	<b>100.0</b>	100.0
	3	69.2	71.4	<b>85.7</b>	78.6
	4	58.3	46.2	<b>38.5</b>	53.8
<b>Sex</b>	F	75.0	<b>82.4*</b>	76.5	82.4
	M	50.0	<b>47.6</b>	52.4	61.9
<b>O<sub>2</sub> use</b>	Y	<b>28.6*</b>	42.9	37.5	62.5
	N	<b>69.0</b>	60.0	70.0	73.3

mMRC score of 0 and 1 combined as only 1 patient in COPD population had mMRC of 0

(\*p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001) HRQoL= health-related quality of life, mMRC=Modified Medical Research Council Dyspnea Scale