

Classification of Graded Pulmonary Exacerbations

For this study a graded pulmonary exacerbation was defined by a worsening in signs and symptoms (S&S) requiring a change in treatment* and captured and graded using the following definition**:

Main Signs & Symptoms	Grading	
Increased cough	Type 1	3 main S&S
Increased sputum volume	Type II	2 main S&S
Increased sputum purulence	Type III	1 main+ >1 minor S&S
Minor Signs and Symptoms		
Upper respiratory tract infection within the previous 5 days (e.g. sore throat, nasal discharge, nasal congestion)		
Fever without any other cause		
Increased wheezing		
Increased dyspnoea		
Increase in respiratory rate, as compared to baseline		
Increased cardiac frequency (heart rate) by 20%, as compared to baseline		
Increased malaise, fatigue or lethargy		

If during the course of a graded exacerbation new signs or symptoms appeared, the grading would be reclassified; that is, an exacerbation that was originally type III would be reclassified as type I or type II, but not the reverse.

* *Guidance for Industry Chronic Obstructive Pulmonary Disease: Developing Drugs for Treatment DRAFT GUIDANCE U.S. Department of Health and Human Services Food and Drug Administration Center for Drug Evaluation and Research (CDER) November 2007*

** *Adapted from Anthonisen NR, Manfreda J, Warren CP, Hersfield ES, Harding GK, Nelson NA. Antibiotic therapy in exacerbations of chronic obstructive pulmonary disease. Ann Intern Med 1987;106:196-204*